

SETTLEMENT AGREEMENT

This Settlement Agreement (the “Agreement”) is entered into by and between (1) Holcim (as defined herein) and the (2) Environmental Groups (as defined herein), and any successors, assigns, and persons acting on behalf of Holcim or the Environmental Groups. Holcim and the Environmental Groups are referred to in this Agreement individually as a “Party” and collectively as the “Parties.”

WHEREAS, Holcim has submitted an application to the Texas Commission on Environmental Quality (“TCEQ”) to amend an existing air quality permit (the “Permit Amendment,” as defined herein) for Holcim’s Midlothian, Texas cement plant (“Plant,” as defined herein), and the Executive Director of the TCEQ has issued a Draft Permit (the “Draft Permit,” as defined herein) for Holcim’s application;

WHEREAS, the Environmental Groups have opposed Holcim’s Permit Amendment including requesting a contested case hearing because of their concerns over the alleged impacts of the Permit Amendment;

WHEREAS, the TCEQ has granted the Environmental Groups’ requests for a contested case hearing;

WHEREAS, Holcim is willing to enter into this settlement so the Permit Amendment can be issued and Holcim can operate the Plant in accordance with the Permit Amendment;

WHEREAS, the Environmental Groups are willing to enter into this settlement to allow the Permit Amendment to be issued without any Challenge (as defined herein) in exchange for actions to be taken by Holcim as specified herein;

WHEREAS, the Parties intend that the Environmental Groups shall withdraw their hearing requests and covenant not to bring any Challenge to the Permit Amendment under the terms and conditions of this Agreement, subject to the Parties’ rights to enforce this Settlement Agreement;

NOW, THEREFORE, in consideration of the covenants, representations, and warranties contained in this Agreement and for other good and valuable consideration, the receipt and sufficiency of which is acknowledged, the Parties agree as follows:

1. Definitions.

- a. “Challenge” shall mean any administrative, judicial, political, or any other type of challenge to the Permit Amendment. Nothing in this Agreement limits or restricts the Environmental Groups from engaging in the activities set forth in Paragraph 5.f of this Agreement.
- b. “Chief Clerk” shall mean the chief clerk of the TCEQ.

- c. "Commission" shall mean the commission of the TCEQ.
- d. "Current Permit" shall mean Air Permit No.8996/PSD-TX-P454M2 issued to Holcim on May 1, 1998.
- e. "Draft Permit" shall mean the draft permit for Holcim's PSD application forwarded to the Commission by the TCEQ Executive Director on January 21, 2005 (and attached hereto as Exhibit A), and any subsequent amendments or modifications to such draft permit that are in accordance with this Agreement, are otherwise acceptable to the Parties, or do not involve material changes.
- f. "Environmental Groups" shall mean Blue Skies Alliance ("BSA") and Downwinders at Risk ("DAR") and any successors, assigns, and persons acting on behalf of either or both organizations. This definition does not include volunteers or members acting in their individual capacity and not as a member of either of the Environmental Groups.
- g. "EPA" shall mean the U.S. Environmental Protection Agency.
- h. "Escrow Agreement" shall mean the agreement between the Parties governing disbursement of funds from the escrow that is required by this Agreement, and is attached hereto as Exhibit B.
- i. "Executive Director" shall mean the Executive Director of the TCEQ.
- j. "Holcim" shall mean Holcim (Texas) Limited Partnership, Holcim (US) Inc., and successors, assigns, and persons acting on behalf of Holcim.
- k. "NOx" shall mean nitrogen oxide air emissions.
- l. "Plant" shall mean Holcim's cement plant in Midlothian, Texas, including, but not limited to, kiln lines 1 and 2.
- m. "Permit Amendment" shall mean TCEQ Docket No. 2004-1086-AIR concerning Holcim's application under the Prevention of Significant Deterioration (PSD) program to amend existing Air Permit No. 8996/PDS-TX-454M2, and shall also include the Draft Permit and the issuance of the Permit Amendment by TCEQ.
- n. "Release Date" shall mean the Release Date as defined in Paragraph 2.a.
- o. "TCEQ" shall mean the Texas Commission on Environmental Quality (previously named the Texas Natural Resource and Conservation Commission or TNRCC).

2. **Payment by Holcim.** Within 15 days after execution of this Agreement, Holcim shall make the payment required in Paragraph 2.b into an escrow account to be established at U.S. Bank National Association and shall provide contemporaneous written notice to the

Environmental Groups. The escrowed funds shall be disbursed as generally described below subject to the limitation in Paragraph 2.a, and pursuant to the terms of the Escrow Agreement. The Escrow Agreement shall be executed contemporaneously with this Agreement and attached hereto as Exhibit B.

- a. No payments under Paragraph 2.b shall be made from the escrow account until the "Release Date," which shall be the date 15 days after the Permit Amendment has been issued and the Permit Amendment has become final under TCEQ regulations (i.e., not appealable to any court). The payment obligations under Paragraph 2.b are subject to the terms of Paragraph 9.a.
- b. As further detailed in the Escrow agreement and in Paragraph 6 below, upon the Release Date, the sum of \$2,250,000.00 (two million two hundred fifty thousand dollars and no cents) shall be paid from the escrow to one or more third parties to be used for NOx reduction projects within or affecting the Dallas-Fort Worth ozone nonattainment area. If the amount available to be paid from the escrow is less than \$2,250,000.00 (two million two hundred fifty thousand dollars and no cents), Holcim shall pay the difference from a source other than the escrow in accordance with the requirements of this Settlement Agreement and Escrow agreement.
- c. As further detailed in the Escrow Agreement, upon the completion of all payments from the escrow that are required by this Agreement, any remaining balance, if any, plus all interest earned on the escrowed funds shall be donated to the Midlothian Independent School District for use in programs dedicated to helping special needs children.
- d. The payments required by Paragraphs 3.a and 3.b below shall not be part of the escrow but shall be made directly by Holcim.

3. Scientist and Expenses.

- a. Holcim agrees that within 5 business days after the Environmental Groups withdraw their hearing requests pursuant to Paragraph 5.b, Holcim shall commence to pay invoices within 30 days after receipt on a monthly basis up to \$120,000.00 (total) over a maximum five-year period for a mutually agreed upon scientist. For up to 45 days after execution of this Agreement, Irvin Uphoff will serve as interim scientist. The scientist shall have the following rights and duties, including any activity reasonably necessary to complete such tasks:
 - (i) The scientist shall have access to all areas of the Plant (except as required to be limited for legitimate safety reasons) and all records (this includes, but is not limited to, the Plant's control room, operator logs and computerized records) as necessary to determine Holcim's compliance with this Agreement, and all environmental laws, rules and permits;

- (ii) The scientist may accompany local, county, state or federal inspector(s) on any noticed or no noticed inspections;
- (iii) The scientist may visit the Plant at any time on the following phased frequency: a weekly basis for the first two months, then a monthly basis for the remaining first two years, then quarterly for years 3 through 5. The scientist must provide 24 hours notice of any visits under this subparagraph. Notice may be provided by telephone to a telephone number which shall be provided by Holcim to the Environmental Groups within 10 days of the execution of this Agreement. If such telephone number is subsequently changed, Holcim shall promptly provide notice of the new telephone number to the Environmental Groups, and all subsequent notice by the scientist shall be provided to the new telephone number;
- (iv) The scientist may make one no notice visit quarterly, in lieu of one of the applicable visits provided for in Paragraph 3.a(iii) above, which does not include times that the scientist is accompanying a local, county, state or federal inspector(s) or investigating a citizen complaint, as discussed below. Any no notice visit, however, is subject to availability of Holcim escorting personnel, which shall be provided as soon as possible, but no later than 2 hours of the scientist's arrival at the Plant or the scientist's notification to the Plant of the proposed visit by telephone (to the telephone number provided by Holcim in accordance with Paragraph 3.a(iii));
- (v) The scientist may make a report and/or complaint after any visit;
- (vi) Upon receipt, the scientist shall have 15 days to review and comment on the written test plan that Holcim is required to submit to TCEQ under paragraph 6(A) of Agreed Order Docket No. 2005-0115-AIR for the pilot testing of selective non-catalytic reduction (SNCR) technology. If the scientist has comments regarding the test plan, those comments may be submitted in writing to TCEQ, EPA and Holcim. Under Agreed Order Docket No. 2005-0115-AIR, TCEQ is required to consider such comments on the test plan. Failure of the scientist to review and comment on the test plan is not a violation of this Agreement and shall not affect Holcim's right to proceed with pilot testing of the SNCR technology;

- (vii) The scientist shall attend and may evaluate and/or report on Holcim's installation and testing of the SNCR technology which occurs after the date of execution of this Agreement. Holcim shall provide notice of such installation and testing in accordance with Paragraph 3.a(xvi). If the scientist has comments regarding the installation or testing, those comments shall be submitted in writing to TCEQ, EPA and Holcim within 30 days after the completion of the installation and/or testing, as applicable. If Holcim provides notice in accordance with Paragraph 3.a(xvi), then failure of the scientist to attend the installation and/or testing of the SNCR technology and/or to comment is not a violation of this Agreement and shall not affect Holcim's right to proceed with the installation and testing of the SNCR technology. Holcim shall provide the scientist access to all information/material related to the SNCR testing. (For purposes of illustration and not limitation, examples of such information/material include design, installation, operational and testing notes/records, CEMS data and equipment calibration, etc.). After reviewing the information/material, the scientist may have comments/concerns about the SNCR testing that are a result of his absence from the baseline and the first five days of Line 1 SNCR testing. If the scientist does, those comments/concerns shall be provided in writing to Holcim, TCEQ and EPA. Holcim also agrees to conduct the baseline and five days of Line 1 SNCR testing again, if the scientist's comments/concerns cannot be resolved without retesting;
- (viii) Upon receipt, the scientist shall have 30 days to review and comment on the report of SNCR testing results that Holcim is required to submit to TCEQ under paragraph 6(C) of Agreed Order Docket No. 2005-0115-AIR. If the scientist has comments regarding the SNCR testing results, those comments shall be submitted in writing to TCEQ, EPA and Holcim. Under Agreed Order Docket No. 2005-0115-AIR, TCEQ is required to consider comments on the test plan submitted by the scientist. Failure of the scientist to review and/or comment is not a violation of this Agreement and shall not affect Holcim's right to proceed with the installation and testing of the SNCR technology;
- (ix) The scientist may evaluate and report on Holcim's submission of a request for permit alteration pursuant to Draft Permit Special Condition 24. If the scientist has comments, he will submit those in writing to TCEQ, EPA and Holcim within 30 days after Holcim's simultaneous submission of a request for

permit alteration to TCEQ. Concurrently with its submission to TCEQ, Holcim shall provide a copy of its request for permit alteration to the Environmental Groups. Failure of the scientist to evaluate, report, and/or to comment is not a violation of this Agreement and shall not affect Holcim's right to proceed with the permit alteration;

(x) The scientist shall attend and may evaluate and/or report on Holcim's testing of alternative fuels as described in Exhibit C. Holcim shall provide notice of such testing in accordance with Paragraph 3.a(xvi). Holcim shall not conduct such testing until expiration or waiver of the required notice period. Any comments by the scientist must be submitted to Holcim within 30 days after receipt of test results. Holcim shall have the right to respond to such comments within 15 days of receipt. If the exchange of comments or the provisions provided in Exhibit C do not resolve each Party's concerns or issues, the Parties will meet and confer in good faith to attempt to resolve such concerns or issues. If a Party believes such a meeting is necessary, that Party shall provide written notice in accordance with Paragraph 9.1 to the other Party. The meeting shall occur at a mutually agreeable time and date as soon as possible, preferably within 10 business days, after the non-requesting Party receives such notice. If necessary, either Party may request the assistance of EPA to resolve such concerns or issues. If Holcim provides notice in accordance with Paragraph 3.a(xvi), then failure of the scientist to attend and/or evaluate the testing of alternative fuels and/or comment is not a violation of this Agreement and shall not affect Holcim's right to proceed with the testing of alternative fuels;

(xi) The scientist may respond to and document citizen complaints reported to TCEQ and/or the Environmental Groups regarding Plant operations. This may include, but is not limited to, conducting a noticed or no noticed visit to the Plant to investigate the allegation(s). Any no notice visit, however, is subject to availability of Holcim escorting personnel, which shall be provided as soon as possible, but no later than 2 hours of the scientist's arrival at the Plant or the scientist's notification to the Plant of the proposed visit by telephone (to the telephone number provided by Holcim in accordance with Paragraph 3.a(iii)). If 24 hours notice is provided, then Holcim's escorting personnel shall be available immediately at the time specified in the notice. Such 24 hour notice may be provided by telephone (to the telephone number provided by Holcim in accordance with Paragraph 3.a(iii));

- (xii) The scientist shall attend and may evaluate Annual CEMS RATA which Holcim shall conduct for a period of five years from the execution of this Agreement. Holcim shall provide notice of this event in accordance with Paragraph 3.a(xvi). Holcim shall not conduct Annual CEMS RATA testing until the expiration or waiver of the required notice period. If Holcim provides notice in accordance with Paragraph 3.a(xvi), then failure of the scientist to attend and evaluate the Annual CEMS RATA is not a violation of this Agreement and shall not affect Holcim's right to proceed with the Annual CEMS RATA;
- (xiii) The scientist shall attend the installation and collection of the PM_{2.5} monitor and may review and report to the Environmental Groups on PM_{2.5} data made available under Paragraph 4.f(2) of this Agreement. Holcim shall provide notice of such installation and collection in accordance with Paragraph 3.a(xvi). Holcim shall not install the PM_{2.5} monitor or collect data from it until the expiration or waiver of the required notice period. If Holcim provides notice in accordance with Paragraph 3.a(xvi), then failure of the scientist to attend the installation and collection of the filters/samples from the PM_{2.5} monitor is not a violation of this Agreement and shall not affect Holcim's right to proceed with the collection of the filters/samples from the PM_{2.5} monitor;
- (xiv) The scientist is required by Mine Safety and Health Administration regulations and Holcim policy to be accompanied by Holcim personnel at all times and to receive safety training. If additional training is necessary, Holcim will provide it or agrees to pay for these costs in addition to the \$120,000 previously agreed to for actual invoices;
- (xv) While on the Plant property, the scientist shall comply with all Holcim safety requirements, policies and procedures required by law, rule or permit provisions. These requirements shall not be implemented with the intent to circumvent the rights and duties of the scientist; and
- (xvi) Holcim shall provide written notice to the Environmental Groups in accordance with Paragraph 9.1 such that Holcim's notice is received by the Environmental Groups at least 6 business days before the subject of the notice occurs. The Environmental Groups understand and agree that unforeseen circumstances or events may require the date(s) for planned

activities to be advanced or delayed depending on the particular circumstances or events. In such cases, Holcim shall provide such notice of the rescheduled date(s) as is reasonable under the circumstances.

- b. Holcim further agrees that within 5 business days after the Environmental Groups withdraw all of their hearing requests pursuant to Paragraph 5.b, Holcim shall pay \$98,064.50 to the Environmental Groups for expenses related to their challenges to the Permit Amendment and negotiations related to this Agreement.

4. **Additional Actions by Holcim.** In addition to the requirements of Paragraph 2, Holcim shall undertake the following actions:

- a. **SNCR Pilot Testing.** Holcim shall pilot test SNCR (Selective Non-Catalytic Reduction) technology as outlined in the Permit Amendment.
- b. **NOx Permit Limits.** The Parties agree that the obligations under this Paragraph 4.b will no longer be enforceable ten (10) years from the date of execution of the Settlement Agreement. Holcim agrees to the following conditions: (i) annual NOx emissions will not exceed 3617 tpy and/or 1300 lbs/hr; (ii) from May 1 through September 30 NOx emissions will not exceed 1564 tpy; (iii) SNCR will be operated at all times the kiln is operating from April 15 through October 15 except when a detached or secondary plume is observed by Method 22 observation; (iv) emissions that result from a start-up, shutdown, or maintenance activity, or a malfunction event, shall be reported as required by 30 TAC Chapter 101, Subchapter F, and shall be included in the annual Emissions Inventory reporting; and (v) emissions resulting from a start-up, shutdown, or maintenance activity, or a malfunction event, will apply towards the total NOx emission limits of 3617 tpy, 1300 lbs/hr and/or 1564 tpy for the May 1 through September 30 time period. No later than 15 days after execution of the Agreement, Holcim agrees to request TCEQ to modify the Draft Permit in accordance with the conditions in subparagraphs 4.b(i)-(iv), i.e., modify Draft Permit Special Condition 24.B and the MAERT to incorporate the condition in subparagraph 4.b(i); modify Draft Permit Special Condition 24.C(1) and the MAERT to incorporate the condition in subparagraph 4.b(ii); modify Draft Permit Special Condition 24.E to incorporate the condition in subparagraph 4.b(iii); and modify Draft Permit Special Condition 24.F to incorporate the condition in subparagraph 4.b(iv). Holcim shall contemporaneously provide a copy of its request to the Environmental Groups.
- c. **Emission Reduction Credits.** If Holcim reduces NOx emissions below 3617 tons per year, Holcim shall not be entitled to and shall not apply for any potential NOx emission reduction credits ("credits") above 2578.5 tons NOx emissions per year. Any credits earned by reducing NOx emissions below 2578.5 tons per year shall be available to Holcim for use or sale under TCEQ regulations. Holcim shall

provide contemporaneous notice to the Environmental Groups in accordance with Paragraph 9.1 of any application for credits below 2578.5 tons NOx per year.

d. Alternative Fuels.

(1) Within 180 days of execution of this Settlement Agreement, the Parties agree that Holcim will test for the effect of alternative fuels on emissions of certain specified volatile organic compounds (VOC) as described in the attached test protocol (Exhibit C). In addition, Holcim will provide notice of, and if requested by the Environmental Groups, hold a meeting to discuss any proposed alterations, modifications, amendments and/or standard permit application(s) for alternative fuels to the Environmental Groups at least 30 days prior to submitting such application(s) to TCEQ, and will provide a copy of such application(s) to the Environmental Groups concurrently with submittal to TCEQ.

(2) Data generated by the testing of alternative fuels in accordance with Exhibit C shall be used only for the purpose of determining whether certain specified VOC emissions are caused by alternative fuels. The Parties agree that such data will only be interpreted as set forth in Exhibit C. For three years after the execution of this Agreement, all data obtained by the Parties under this provision shall be confidential and shall not be disclosed to the media or any third party unless required by law. If any Party receives a subpoena or other legal request for such data, that Party shall promptly notify the other. Notwithstanding the foregoing, the Parties may use such data if necessary to enforce or defend this Agreement, and the Parties may mutually agree to release of the data at any time. For the purposes of this Paragraph 4.d(2), Holcim includes any parent or affiliates.

e. Hazardous Waste. In the event that Holcim has any discussion(s) with TCEQ regarding the intent to use hazardous waste as a fuel, Holcim shall provide the Environmental Groups with contemporaneous (i.e., within 24 hours) notice of any such discussion(s). In addition, Holcim will provide notice of, and if requested by the Environmental Groups hold a meeting to discuss, any proposed alterations, modifications, amendments and/or standard permit application(s) to use hazardous waste as a fuel at the Plant to the Environmental Groups prior to submitting such application(s) to TCEQ. Holcim will also provide a copy of such application(s) to the Environmental Groups concurrently with submittal to TCEQ. Holcim shall also involve the Environmental Groups in all stages of the regulatory permitting process. Holcim will not burn PCB-containing used oils (exceeding 50 ppm PCBs).

f. Monitoring.

(1) Within 180 days of execution of this Settlement Agreement, Holcim shall establish a website which the Environmental Groups can access to obtain real-time NOx, SOx (sulfur oxides), and CO (carbon monoxide) air emission monitoring data from kiln lines 1 and 2 in the form of hourly readouts from the

Plant's Continuous Emission Monitoring System (CEMS). Hourly emission data for the current day and for the preceeding 29 days will be stored on the website. Holcim shall provide contemporaneous notice to the Environmental Groups stating that the website is functioning and providing information necessary for access.

(2) Within 180 days of execution of this Settlement Agreement, Holcim shall install and commence to perform fenceline monitoring for particulate matter (PM_{2.5}) for three (3) years at one station to be placed at a mutually agreed location at the north end of the Plant's current boundary. Holcim shall supply the data to the Environmental Groups within 30 days after the end of each quarter (i.e., by January 30, April 30, July 30, and October 30).

- g. Financial Incentive. The Parties shall cooperate and use best efforts to introduce and enact state legislation that would provide a financial incentive to Holcim or other companies for installation of air pollution control equipment. The text of the proposed language for such a bill is set forth in Exhibit D to this Agreement, but the proposed language may be modified subject to the Parties' mutual agreement. The Parties shall attempt to find a sponsor to introduce the bill in the Texas legislature after execution of this Agreement, in the current legislative session if the timing allows or otherwise in the next legislative session. The Parties understand that there is no guarantee that such legislation will be introduced or enacted and that the bill could be substantially changed during the legislative process; however, the Parties agree to not take any actions to intentionally undermine the proposed language. Failure to obtain introduction, consideration, or passage of the bill shall not constitute a breach of this Agreement. This provision shall be in effect only until the conclusion of the next session of the Texas legislature after execution of this Agreement. Holcim's representative under this Paragraph will be William G. Phenix, and the Environmental Groups agree to coordinate with Mr. Phenix for all purposes under this Paragraph. Mr. Phenix's contact information is PO Box 684551, Austin, Texas 78768-4551, 1122 Colorado, Suite 210, Austin, Texas 78701, 512-633-8811, 512-494-8696 (fax).

5. Environmental Groups' Withdrawal of Opposition to Permit Amendment.

- a. In exchange for the actions to be taken by Holcim in this Agreement, the Environmental Groups agree to forego any further efforts to bring any Challenge or otherwise oppose the Permit Amendment in any way, directly or indirectly;
- b. Within 5 business days after receipt by the Environmental Groups of notice that Holcim has deposited the funds in the escrow account pursuant to Paragraph 2, the Environmental Groups shall simultaneously fax and mail a letter to the TCEQ Clerk and Holcim withdrawing their pending hearing requests. The withdrawal letter shall follow the form prescribed in Exhibit E to this Agreement and shall be

signed by the current Chair, Executive Director, or its equivalent position for each Environmental Group.

- c. The Environmental Groups represent, warrant, and covenant that upon execution of this Agreement the Environmental Groups will make no further Challenge, either by themselves or in cooperation with any other person or group.
- d. The Environmental Groups represent, warrant, and covenant that the Environmental Groups will make no effort to solicit, encourage, counsel, or assist any other person, group, or agency to bring any Challenge, and that they are not aware of any other person, group, or agency who intends or is planning such Challenge.
- e. The Environmental Groups represent, warrant, and covenant that they shall not initiate any administrative, judicial, political, or any other effort or proceeding against any federal or state government agency in an attempt to force or persuade any such government agency to challenge the issuance of the Permit Amendment.
- f. Except as otherwise provided herein, nothing in this Agreement prohibits the Environmental Groups from: (a) seeking to enforce the terms of the Current Permit or Permit Amendment after issuance; (b) challenging any subsequent permit applications, alterations, modifications, amendments or renewals by Holcim (including, but not limited to, future amendments, alterations, or standard permits which involve new and/or different alternative fuel substances, or separate applications for permitting hazardous waste burning), (c) enforcing the provisions of this Agreement, (d) participating in the development of the Dallas-Fort Worth state implementation plan or related activities, (e) participating in any state or federal rulemaking or similarly related rulemaking activities, (f) providing public access to the Environmental Groups' public files, (g) challenging any permit applications, alterations, modifications, amendments or renewals by any person/entity other than Holcim, or (h) other reasonably related activities in accordance with the Environmental Groups' missions and goals that are not barred by this Agreement.
- g. The Environmental Groups agree that, except as otherwise provided in this Agreement, they will not challenge or contest any modifications to the Permit Amendment required to conform to this Agreement.

6. **Air Quality.** This Paragraph provides further details regarding the implementation of Paragraph 2.b.

- a. The additional NOx reductions component of this Agreement consists of the payment from the escrow to one or more of the following third parties: the North Central Texas Council of Governments, DFW nonattainment area city or county governments, or Habitat for Humanity. The total payment(s) shall not exceed the

amount specified in Paragraph 2.b and shall be used for the activities set forth in this Paragraph.

- b. The Environmental Groups shall not receive any of the funds under this Paragraph.
- c. The third party(ies) shall use the funds to carry out activities that have a likelihood of achieving NOx reductions. The anticipated activities are:
 - i. School bus or other fleet emission retrofits or reductions;
 - ii. Low-income household weatherization;
 - iii. Truck stop electrification;
 - iv. Car replacement program; or
 - v. Energy efficient building projects.
- d. In the event that the activities set forth above cannot be undertaken by the third parties listed above, then the Environmental Groups shall designate, subject to Holcim's reasonable approval, substitute third parties similarly qualified to undertake the activities identified in Paragraph 6.c above. In the event that the activities set forth above cannot be undertaken by any of the above listed third parties, then the Environmental Groups shall designate substitute activities, and third parties to undertake them, subject to Holcim's reasonable approval, consistent with the objectives identified in Paragraph 6.c above. If Holcim fails to approve substitute activities and/or third parties, then the money designated for these projects shall not be returned to Holcim, but rather shall be donated to the Midlothian Independent School District for use in programs dedicated to helping special needs children.
- e. The third party(ies) may seek and use whatever matching funds they may be able to obtain from government agencies or other organizations in order to increase the effectiveness of the activities identified in this Paragraph.
- f. The third party(ies) shall be allowed to retain reasonable administrative fees and expenses for their involvement in activities contemplated by this Paragraph. The Environmental Groups shall make best efforts to help ensure that any such fees and expenses are as low as practicable.

7. **Compliance With Applicable Laws and Regulations.** Nothing in this Agreement shall require or be construed to require Holcim to take any actions which violate applicable federal and state laws and regulations (in their current form or as modified in the future).

8. **Exhibits.**

The following exhibits are hereby made part of this Agreement:

Exhibit A: Draft Permit

Exhibit B: Escrow Agreement.

Exhibit C: Alternative Fuels Test Protocol.

Exhibit D: Text of Proposed Bill.

Exhibit E: Form for Withdrawal Letters.

9. Miscellaneous.

- a. Termination of Agreement. If Holcim elects in its sole discretion not to obtain the Permit Amendment or not to appeal a denial of the Permit Amendment, then:
- i. there shall be no Release Date under Paragraph 2.a,
 - ii. all of the remaining escrowed funds shall be returned to Holcim with interest accrued, except Holcim shall comply with Paragraphs 3.a and 3.b of the Agreement until such time at which the Agreement is terminated and will receive no refund for any payment(s) made prior to termination, and
 - iii. all other obligations and rights under the Agreement shall terminate and be null and void.

If the Permit Amendment issued by TCEQ and accepted by Holcim contains material changes that are not in accordance with this Agreement, are not otherwise acceptable to either of the Parties, and place an additional financial burden on Holcim within the first three years after the Permit Amendment is issued, for additional emission control(s), monitoring requirements, operating costs, or other related costs, either in the aggregate or otherwise, in excess of the amount stated in Paragraph 2.b, then this Agreement remains in force, except:

- i. there shall be no Release Date under Paragraph 2.a, and
- ii. all of the remaining escrowed funds shall be returned to Holcim with interest accrued, except that Holcim shall comply with Paragraphs 3.a and 3.b of the Agreement.

Such material changes must result from action by the Commission/TCEQ that was not requested or initiated by Holcim or the efforts of a Challenge to the Permit Amendment by a third party (e.g., EPA, the Environmental Groups, or Holcim). Upon execution of this Agreement, Holcim represents, warrants, and covenants that Holcim will make no effort to solicit, encourage, counsel, or assist any other person, group or agency to make such material changes, and Holcim is not aware of any other person, group, or agency who intends or is planning such material changes. If after execution of this Agreement, Holcim becomes aware that any other person, group or agency is attempting to make such material

changes, Holcim will provide contemporaneous notice to the Environmental Groups.

- b. Entire Agreement. This Agreement constitutes the entire agreement between the Parties and supersedes any prior understandings or agreements by or between the Parties, written or oral, that may have been related in any way to the subject matter of this Agreement.
- c. Binding Agreement; Assignment. This Agreement shall be binding upon, and shall inure to the benefit of, the Parties and their respective successors, heirs, representatives and permitted assigns. Except as otherwise provided in this Agreement, the Parties may not assign either this Agreement or any of their rights, interests, or obligations under this Agreement without the prior written approval of the other Party.
- d. Amendments and Waivers. No amendment of any provision of this Agreement shall be valid unless it is in writing and signed by all Parties. No waiver by a Party of any default, or breach of covenant, or breach of representation or warranty under this Agreement, whether intentional or not, shall be deemed to extend to any prior or subsequent default, or breach of covenant, or breach of representation or warranty under this Agreement, or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. Each Party also agrees to provide notice of any default to the allegedly defaulting Party. After receiving the notice, the allegedly defaulting Party shall have a reasonable amount of time, not to exceed 30 days, to cure the default. If the default can not be cured within 30 days, the allegedly defaulting Party shall undertake substantial initiatives within such time period to remedy the default and provide contemporaneous written notice and explanation to the non-defaulting Party(ies) about the initiatives being taken. Such defaulting Party shall diligently continue with such activities until the default is cured. This default provision shall not prohibit the pursuit of legal actions including, but not limited to, regulatory based legal actions such as filing complaints or requests for enforcement. All notices shall be provided in accordance with Paragraph 9.1.
- e. Expenses. Except as otherwise provided herein, each of the Parties shall bear its own expenses incurred, including attorney's fees, in connection with the negotiation of this Agreement and the transactions contemplated by this Agreement.
- f. Construction. The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement.

- g. Enforcement of This Agreement. This Agreement shall be interpreted and enforced under the laws of the State of Texas, in a state court of competent jurisdiction in Texas. Notwithstanding any other provision of this Agreement, any Party may bring an action to enforce the terms and conditions of this Agreement including, but not limited to, an action seeking specific performance and/or injunctive relief. The Parties agree that if an action is pursued in state court to enforce Paragraphs 3, 4.b-f and/or 6 of the Agreement, then the parties agree that a court, in its discretion, and as applicable under the facts of the particular matter, may order monetary damages and/or attorney fees in addition to specific performance and/or injunctive relief.
- h. Execution. This Agreement may be executed in one or more facsimile counterparts, each of which shall be as effective as the original, and together shall constitute the final executed version of the Agreement.
- i. Disclosure. The terms of this Agreement may be disclosed to the public. If any Party issues a press release or similar document to the media regarding the terms of this Agreement, that Party shall simultaneously provide a copy thereof, by facsimile, to counsel for the other Party or Parties.
- j. Third Parties. Nothing in this Agreement shall be construed to give any person or entity other than the Parties hereto any legal or equitable claim, right, or remedy; rather this Agreement is intended to be for the sole and exclusive benefit of the Parties hereto.
- k. Authority. The signatories to this Agreement represent that they are authorized and have the power to execute and legally bind the Parties that they represent to this Agreement.
- l. Notices. Except as otherwise provided in this Settlement Agreement, any written notice, demand, request, consent, approval, or communication that either party desires or is required to give to the other shall be served by one of the following methods:

For notice under Paragraph 3.a to Environmental Groups: by (1) fax to (469) 241-0430, (2) e-mail to Info@BlueSkiesAlliance.org and Info@DownwindersAtRisk.org; or (3) by certified mail return receipt requested to both of the following addresses:

Blue Skies Alliance
Attn: Executive Director
2525 Preston Rd., #1422
Plano, TX 75093

With copy to: Downwinders at Risk
Attn: Chair

P.O. Box 763844
Dallas, TX 75736

For all other notices to Environmental Groups: by certified mail return receipt requested to both of the above addresses.

For all notices to Holcim: by certified mail return receipt requested to both of the following addresses:

Holcim (Texas) Limited Partnership
Attn: Plant Manager
1800 Dove Lane
Midlothian, TX 76065

With copy to: Holcim (US) Inc.
Attn: Legal Dept.
6211 Ann Arbor Rd.
Dundee, MI 48131

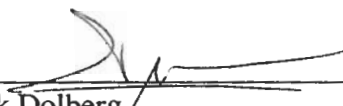
Or to such other fax, e-mail, or address(es) as either party from time to time shall designate by written notice to the other.

- m. Holcim Personnel: To assist Holcim personnel in compliance with the terms of the Settlement Agreement, Holcim agrees to keep a copy of the Settlement Agreement at the Plant. Holcim also agrees to provide notification of the Settlement Agreement's terms to all personnel that may have duties/responsibilities associated with compliance of this Settlement Agreement.
- n. Severability. If any provision of this Agreement, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this Agreement, or the application of such provision to persons or circumstances other than those as to which it is found to be invalid, as the case may be, shall not be affected thereby.

IN WITNESS WHEREOF, the Parties have executed this Agreement in three originals to be effective as of the date last signed by any of the Parties:

Holcim (Texas) Limited Partnership

Dated: 7-29-05

By: 
Patrick Dolberg
President and CEO, Holcim (US) Inc.

Dated: 7-26-05

By: Keith J. Klein
Keith J. Klein
Attorney for Holcim

Blue Skies Alliance

Dated: 7-20-05

By: Wendi Hammond
Wendi Hammond, Executive Director

Downwinders at Risk

Dated: 7-20-05

By: Jan Schenck for Rebecca Bornhorst
Rebecca Bornhorst, Chair
By permission

Exhibit A : Draft Permit

Mr. Keith Depew
Plant Manager
Holcim (Texas) Limited Partnership
P.O. Box 1170
Midlothian, Texas 76065

Re: Permit Application
Flexible Permit Number: 8996 and Prevention of Significant
Deterioration (PSD) Permit Number: PSD-TX-454M3
Portland Cement Manufacturing Facility
Midlothian, Ellis County
Regulated Entity Number: RN100219286
Customer Reference Number: CN601231459

Dear Mr. Depew:

This is in response to your Form PI-1, entitled "General Application for Air Preconstruction Permits and Amendments," concerning the above-referenced facility. This will acknowledge that your application for the above-referenced permit is technically complete as of November 21, 2003. We appreciate your cooperation in sending us the information necessary to evaluate your proposal.

As indicated in Title 30 Texas Administrative Code § 116.710, and based on our review, a combined new flexible and modified PSD permit for your facility is enclosed. The permit contains general and special conditions and a table of maximum allowable emission caps/rates with two Attachments that define the level of operation and allowable emissions. In addition, construction (where applicable) and operation of the facilities must be as represented in the application. This permit will be in effect for ten years from the date of approval.

Please reference the regulated entity number (RN), customer reference number (CN), and permit number noted in this document in all your future correspondence for the referenced facility or site. The RN replaces the former Texas Commission on Environmental Quality account number for the facility (if portable) or site (if permanent). The CN is a unique number assigned to the company or corporation and applies to all facilities and sites owned or operated by this company or corporation.

Mr. Keith Depew
Page 2

Re: Flexible Permit Number: 8996 and Prevention of Significant
Deterioration (PSD) Permit Number: PSD-TX-454M3

Thank you for your cooperation and interest in air pollution control. If you need further information or have any questions, please contact Mr. Randy Hamilton at (512) 239-1512 or write to the Texas Commission on Environmental Quality, Office of Permitting, Remediation, and Registration, Air Permits Division (MC-163), P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

For The Commission
Texas Commission on Environmental Quality

RAH/mfs

Enclosures

cc: Mr. David Neleigh, Chief, Air Permitting Section (6PD-R), Environmental Protection Agency,
Region 6, Dallas
Mr. Brian Burdorf, Trinity Consultants, Dallas
Mr. Tony L. Walker, Air Section Manager, Region 4 - Fort Worth

Project Number: 82434



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AIR QUALITY PERMIT

A FLEXIBLE PERMIT IS HEREBY ISSUED TO
Holcim (Texas) Limited Partnership
AUTHORIZING THE CONSTRUCTION AND OPERATION OF
Portland Cement Manufacturing Facility
LOCATED AT
Midlothian, Ellis County, Texas
LATITUDE 32° 30' 38" LONGITUDE 096° 58' 40"



1. **Facilities covered by this permit** shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the executive director of the Texas Commission on Environmental Quality (commission) to amend this permit in that regard and such amendment is approved. It shall be unlawful for any person to vary from such representation or flexible permit provision if the change will cause a change in the method of control of emissions, the character of the emissions, or will result in a significant increase in emissions, unless application is made to the executive director to amend the flexible permit in that regard and such amendment is approved by the executive director. [Title 30 Texas Administrative Code Section 116.721 (30 TAC § 116.721)]
2. **Voiding of Permit.** A flexible permit or flexible permit amendment under this subchapter is automatically void if the holder fails to complete construction as specified in the flexible permit. Upon request, the executive director may grant a one time 12-month extension of the date to complete construction. This section does not apply to physical or operational changes allowed without an amendment under §116.721 of this title (relating to Amendments and Alterations). [30 TAC § 116.715(c)(1)]
3. **Construction Progress.** The start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC § 116.715(c)(2)]
4. **Start-up Notification.** The appropriate regional office of the commission and any local program having jurisdiction shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. Phased construction, which may involve a series of facilities commencing operations at different times, shall provide separate notification for the commencement of operations for each facility. Prior to beginning operations of the facilities authorized by the permit, the permit holder shall identify to the Office of Permitting, Remediation, and Registration the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC § 116.715(c)(3)]
5. **Sampling Requirements.** If sampling of stacks or process vents is required, the flexible permit holder shall contact the commission's Engineering Services Section, Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the appropriate regional office of the commission. The flexible permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC § 116.715(c)(4)]
6. **Equivalency of Methods.** It shall be the responsibility of the flexible permit holder to demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the flexible permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC § 116.715(c)(5)]
7. **Recordkeeping.** A copy of the flexible permit along with information and data sufficient to demonstrate continuous compliance with the emission caps and individual emission limitations contained in the flexible permit shall be maintained in a file at the plant site and made available at the request of personnel from the commission or any air pollution control program having jurisdiction. For facilities that normally operate unattended, this information shall be maintained at the nearest staffed location within Texas specified by the permit holder in the permit application. This information may include, but is not limited to, emission cap and individual emission limitation calculations based on a 12-month rolling basis and production records and operating hours. Additional recordkeeping requirements may be specified in special conditions attached to the flexible permit. Information in the file shall be retained for at least two years following the date that the information or data is obtained. [30 TAC § 116.715(c)(6)]
8. **Maximum Allowable Emission Rates.** A flexible permit covers only those sources of emissions and those air contaminants listed in the table entitled "Emission Sources, Emissions Caps and Individual Emission Limitations" attached to the flexible permit. Flexible permitted sources are limited to the emission limits and other conditions specified in the table attached to the flexible permit. [30 TAC § 116.715(c)(7)]
9. **Emission Cap Readjustment.** If a schedule to install additional controls is included in the flexible permit and a facility subject to such a schedule is taken out of service, the emission cap contained in the flexible permit will be readjusted for the period the unit is out of service to a level as if no schedule had been established. Unless a special provision specifies the method of readjustment of the emission cap, a permit alteration shall be obtained. [30 TAC § 116.715(c)(8)]
10. **Maintenance of Emission Control.** The facilities covered by the flexible permit shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. Notification for emissions events and scheduled maintenance shall be made in accordance with §101.201 and §101.211 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; and Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping). [30 TAC § 116.715(c)(9)]
11. **Compliance with Rules.** Acceptance of a flexible permit by a permit applicant constitutes an acknowledgment and agreement that the holder will comply with all Rules, Regulations, and Orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or flexible permit condition are applicable, then the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the flexible permit. [30 TAC § 116.715(c)(10)]
12. This permit may be appealed pursuant to 30 TAC § 50.139.
13. This permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC § 116.110(e)]
14. There may be additional special conditions attached to a flexible permit upon issuance or amendment of the permit. Such conditions in a flexible permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC § 116.715(d)]
15. **Emissions** from this facility must not cause or contribute to a condition of "air pollution" as defined in TCAA § 382.003(3) or violate TCAA § 382.085, as codified in the Texas Health and Safety Code. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.

FLEXIBLE PERMIT: 8996 and PSD-TX-454M3

Date: _____

For The Commission
Texas Commission on Environmental Quality

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

1. This flexible permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and those sources limited to the emission limits and other conditions specified in the maximum allowable emission rates table (MAERT). **(2/05)**
 - A. Attachment I represents all units covered under a specific emission cap by pollutant for the flexible permit.
 - B. Attachment II represents the plantwide speciated compound emission limits from the Kiln/Scrubber Stacks.
 - C. The 30-day rolling average is to be computed on a daily basis as the average of the hourly emissions on the 30th day and the preceding 29 daily average emissions.
2. This flexible permit establishes emission caps for the total emissions from all sources listed in the MAERT, which will be effected at the issuance of this permit. Compliance with the Kiln/Scrubber Stacks (Emission Point Nos. [EPNs] 7* and 62*) emissions caps for nitrogen oxides (NO_x), sulfur dioxide (SO₂) and carbon monoxide (CO) will be demonstrated by continuous emission monitoring systems (CEMS). Individual emission calculations represented in the flexible permit application for the particulate matter (PM) sources identified in Attachment I form the basis of the emission caps for PM. Compliance with the PM emission caps and Kiln/Scrubber Stacks (EPNs 7* and 62*) emission caps for pollutants other than NO_x, SO₂, and CO will be demonstrated by calculated emissions, stack testing, continuous opacity monitoring system (COMS) or emissions measuring device acceptable by the U.S. Environmental Protection Agency (EPA). **(2/05)**
3. Fuels fired in the kiln and precalciner shall be limited as follows: **(2/05)**
 - A. Pipeline-quality, sweet natural gas;
 - B. Coal containing no more than 3.0 percent sulfur by weight;
 - C. Rubber Derived Fuel (RDF), including, but not limited to: tire-derived fuel (TDF), manufacturing raw materials, rejects, and waste; green rubber, off-specification rubber, hoses, and other similar rubber materials;
 - D. Non-hazardous oil containing materials, including, but not limited to: on-site and off-site generated oil filter fluff, absorbents, rags, grease, wax, and other similar materials;

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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- E. Non-hazardous oil containing liquids, including, but not limited to: on-site and off-site generated on-specification oil, off-specification oil, oil water emulsions, oily waters, virgin fuel oils, virgin oils, and other similar liquids;
- F. Asphalt base composite roofing material, up to 10 tons per hour and 87,000 tons per year (tpy), including: sand, fiberglass, and other non-asphalt materials in the composite;
- G. Wood chips; and
- H. Activated carbons.

No hazardous waste, as defined by the Federal Resource Conservation and Recovery Act and the rules implementing that Act, may be fired in the kiln or precalciner.

- 4. Fuels specified in Special Condition Nos. 3C, 3D, 3E, 3F, 3G, and 3H shall not exceed 60 percent on an hourly average basis of the total fuel fed into the kiln system (kiln and precalciner) on a higher heating value (HHV) basis. The TDF shall not exceed 45 percent on an hourly average basis of the total fuel fed into the kiln system (kiln and precalciner) on an HHV basis. The natural gas heating value shall be provided by the gas supplier, and the HHVs and sulfur content of the coal and TDF shall be determined by monthly sampling. **(2/05)**
- 5. Except as otherwise specified in the enclosed MAERT, emission rates for all other individual chemical species with an Effects Screening Level (ESL) from each Kiln Scrubber stack are limited as follows:

$$\text{Emission Rate (lb/hr)} = \frac{\text{short-term ESL} \times 7.34}{2}$$

$$\text{Emission Rate (TPY)} = \frac{\text{annual ESL} \times 1,071}{2}$$

The applicable 30-minute and annual Texas Commission on Environmental Quality (TCEQ) ESL values for any individual chemical species limited by this condition are those contained in the TCEQ ESL list dated July 19, 2000. The allowable emission rate shall be calculated for each contaminant tested pursuant to Special Condition No. 16A, and the calculated allowable emission rate shall be included in the sampling report submitted pursuant to Special Condition No. 16D. **(2/05)**

- 6. Fuel shall be injected into the precalciner only when the precalciner temperature is greater than 1200°F. A fuel shutoff shall automatically stop fuel feed to the precalciner when the temperature is less than 1200°F.

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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7. These facilities shall comply with all applicable requirements of the following regulations.
 - A. The EPA Standards of Performance for New Stationary Sources (NSPS) promulgated in Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60),
 - (1) Subpart A - General Provisions;
 - (2) Subpart Y - Coal Preparation Plants; and
 - (3) Subpart OOO - Nonmetallic Mineral Processing Plants.
 - B. The EPA regulations on National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories promulgated in 40 CFR Part 63,
 - (1) Subpart A - General Provisions; and
 - (2) Subpart LLL - Portland Cement Manufacturing Industry.
 - C. The TCEQ regulations in Title 30 Texas Administrative Code Chapter 117 (30 TAC 117), Division 4 - Cement Kilns. **(2/05)**
 - D. If any condition of this permit is more stringent than the regulations so incorporated, then for the purposes of complying with this permit, the permit condition shall govern and be the standard by which compliance shall be demonstrated.
8. Opacity of emissions from the Kiln/Scrubber Stacks (EPNs 7* and 62*) shall not exceed 10 percent as determined by EPA Reference Method (RM) 9 or COMS. Periods of excess emissions are subject to the requirements of 30 TAC §§ 101.201 and 101.211 relating to Emission Events and Scheduled Maintenance, Startup, and Shutdown Activities. **(2/05)**

Visible emissions from all other baghouse stacks shall be determined by EPA RM 22. If visible emissions are observed, the opacity of emissions shall not exceed 5 percent as determined by EPA RM 9. Periods of excess emissions are subject to the requirements of 30 TAC §§ 101.201 and 101.211 relating to Emission Events and Scheduled Maintenance, Startup, and Shutdown Activities. **(2/05)**
9. All hoods, ducts, and collection systems shall be effective in preventing fugitive emissions from buildings. Compliance with this condition shall be determined per the monitoring procedures specified in the Operation and Maintenance Plan required by 40 CFR Part 63, Subpart LLL. **(2/05)**

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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10. Dust emissions from cement loading into trucks or railcars shall be controlled with a self-sealing shroud at the loading point and venting of the displaced air to the fabric filter.
11. Material collected in the baghouses shall be disposed of in a manner that will prevent the material from becoming airborne. The bypass baghouse dust loadout shall be enclosed on two sides with vertical windbreak extending up to the first floor level. A water sprinkler system or water truck shall be used as necessary to control dust emissions from any baghouse dust disposed of in on-site landfills. **(2/05)**
12. Plant roads shall be paved or either water sprinkled or swept, as necessary. Quarry roads, including haul roads (i.e., Raw Material Road and Bypass Dust Road), shall be oiled or water sprinkled, as necessary, to control the emission of dust to the minimum level possible under existing conditions. **(2/05)**
13. Primary coal stockpiles shall be stored in the coal storage building. Any outside coal stockpiles shall be sprayed with water and/or chemicals, as necessary, to control fugitive dust emissions to the minimum level possible under existing conditions. **(2/05)**
14. Actual operation percentages for the following operating scenarios and stack test data shall be used in the calculation of the annual emissions of PM equal to or less than 10 microns in diameter (PM_{10}) and volatile organic compounds (VOC) to demonstrate compliance with the emission limits presented in the MAERT contained in this permit. **(2/05)**
 - * Raw Mill On, Scrubber On
 - * Raw Mill Off, Scrubber On
 - * Raw Mill On, Scrubber Off
 - * Raw Mill Off, Scrubber Off

INITIAL DEMONSTRATION OF COMPLIANCE

15. Sampling ports and platform(s) shall be incorporated into the design of the kiln/scrubber stacks according to the specifications set forth in the enclosed entitled "Chapter 2, Stack Sampling Facilities." Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Director or the TCEQ Director of the Austin Compliance Support Division.
16. The holder of this permit shall, within 180 days of the issuance date of this flexible permit, perform stack sampling and other testing, as required, to establish the actual pattern and quantities of PM_{10} (front-half and back-half), lead, and VOC being emitted into the atmosphere from the two Kiln/Scrubber Stacks (EPNs 7 and 62) and shall perform stack sampling of PM

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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emissions from three baghouses: Finish Mill System No. 1 Baghouse, EPN 23*; Finish Mill System No. 2 Baghouse, EPN 29*; SKS and Cement Mill Baghouse, EPN 66*. Sampling must be conducted in accordance with appropriate procedures of the TCEQ Sampling Procedures Manual and in accordance with EPA RMs. The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at its expense. Production rates shall be recorded during each test run and entered in the final test report. Emissions listed on the MAERT shall not exceed that EPN test average by more than 20 percent. Those MAERT EPNs exceeding the average test emissions by more than 20 percent shall be corrected to within 20 percent by means of a permit alteration. The alteration request must be received by TCEQ within 60 days after the date of the final test report.

- A. The TCEQ Dallas/Fort Worth Regional Office shall be contacted as soon as testing is scheduled, but not less than 30 days prior to sampling to schedule a pretest meeting.

The notice shall include:

- (1) Date for pretest meeting.
- (2) Date sampling will occur.
- (3) Name of firm conducting sampling.
- (4) Type of sampling equipment to be used.
- (5) Method or procedure to be used in sampling.
- (6) A test plan for TCEQ approval which identifies the alternative fuel combinations and maximum firing rates to be tested, and the speciated compounds emissions to be sampled and reported.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper forms for recording pertinent data, and to review the format and procedures for submitting the test reports. In addition, TCEQ may identify species of PM₁₀ and VOC to be analyzed from the PM₁₀ and VOC samples.

A written proposed description of any deviation from sampling procedures specified in permit conditions or TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Dallas/Fort Worth Regional Director or the TCEQ Director of the Compliance Support Division shall approve or disapprove of any deviation from specified sampling procedures.

Test waivers and alternate/equivalent procedure proposals for NSPS and NESHAPS for Source Categories testing which must have EPA approval shall be submitted to the TCEQ Compliance Support Division in Austin.

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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- B. The deadlines for the sampling specified above may be extended. Requests for additional time to perform sampling shall be submitted to the TCEQ Dallas/Fort Worth Regional Office. Additional time to comply with any applicable requirements of 40 CFR Part 60 requires EPA approval, and requests shall be submitted to the TCEQ Compliance Support Division.
- C. Primary operating parameters that enable determination of production rates shall be monitored and recorded during the stack test. These parameters are to be determined at the pretest meeting. Additional stack testing may be required if the kiln achieves a production rate more than 10 percent higher than the rate occurring during the most recent stack test performed after the issuance of this flexible permit. **(2/05)**
- D. Copies of each initial demonstration of compliance sampling report shall be forwarded to the TCEQ within 60 days after sampling is completed unless an extension is granted by the TCEQ Regional Office. Sampling reports shall comply with the provisions of Chapter 14 of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the TCEQ Dallas/Fort Worth Regional Office.

One copy to the TCEQ Austin Office of Permitting, Remediation, and Registration,
Air Permits Division.

One copy to the TCEQ Austin Compliance Support Division.

CONTINUOUS DEMONSTRATION OF COMPLIANCE

- 17. The holder of this permit shall install, calibrate, operate, and maintain a COMS for opacity (or emissions measuring device acceptable by the EPA) and a CEMS for SO₂, NO_x, and CO concentrations in the kiln/scrubber stacks. The holder of this permit shall install, calibrate, operate, and maintain a continuous flow rate sensor to measure and record the exhaust flow rate in the stack. **(2/05)**
 - A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 2 through 4, 40 CFR Part 60, Appendix B.

The COMS (or emissions measuring device acceptable by the EPA) shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in Performance Specification No. 1, 40 CFR Part 60, Appendix B. **(2/05)**

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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- B. The CEMS and COMS (or emissions measuring device acceptable by the EPA) shall be zeroed and spanned daily and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. **(2/05)**

Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days, unless the monitor is required by a subpart of NSPS or NESHAPS, in which case zero and span shall be done daily without exception.

Each CEMS shall be quality-assured at least quarterly in accordance with 40 CFR Part 60, Appendix F, Procedure 1, § 5.1.2. All cylinder gas audit results and any CEMS downtime shall be reported quarterly to the appropriate TCEQ Regional Director, and necessary corrective action shall be taken if the downtime exceeds 10 percent of the kiln operating hours in the quarter. Failure to complete any corrective action as directed by the TCEQ Dallas/Fort Worth Regional Office may be deemed a violation of the permit. For non-NSPS sources, an equivalent method approved by the TCEQ may be used.

- C. Each SO₂, NO_x, and CO CEMS shall complete a minimum of one cycle of sampling, analyzing, and data recording for each successive 15-minute period.

One-hour averages shall be computed from normally at least four, and a minimum of two, data points equally-spaced over each one-hour period. Data recorded during periods of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the computed data averages. **(2/98)**

The gaseous monitoring data shall be reduced to hourly average concentrations using a minimum of four equally-spaced data points from each one-hour period. The gaseous monitoring data shall also be reduced to units of the permit allowable emission rates in pounds per hour (lb/hr).

The opacity monitor shall complete a minimum of one cycle of data recording for each successive ten-second period. Six-minute averages shall be computed from normally at least 36 and a minimum of 18 data points equally-spaced over each six-minute period. Data recorded during periods of COMS (or emissions measuring device acceptable by the EPA) breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the computed data averages. **(2/05)**

- D. The TCEQ Regional Director shall be notified as soon as possible after the discovery of any COMS (or emissions measuring device acceptable by the EPA) or CEMS malfunction, which is expected to result in more than 24 hours of lost data. Supplemental stack

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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concentration measurements may be required at the discretion of the appropriate TCEQ Regional Director in case of extended COMS (or emissions measuring device acceptable by the EPA) or CEMS downtime. **(2/05)**

- E. The TCEQ Dallas/Fort Worth Regional Office shall be notified at least 30 days prior to the quarterly cylinder gas audit required by 40 CFR Part 60 Appendix F in order to provide the TCEQ staff the opportunity to observe the testing.
 - F. The SO₂, NO_x, and CO CEMS and the continuous flow rate sensor shall be used as a continuous emission rate monitoring system (CERMS) for SO₂, NO_x, and CO. **(2/98)**
18. The holder of this permit shall install, calibrate, operate, and maintain continuous reading and recording temperature monitors on the fourth stage gas exit of the precalciner.

REPORTING REQUIREMENTS

19. The holder of this permit shall submit two copies of quarterly CEMS and COMS (or emissions measuring device acceptable by the EPA) reports to the TCEQ Dallas/Fort Worth Regional Office in a format specified by the TCEQ Regional Office. All reports shall be postmarked by the 30th day following the end of each calendar quarter and shall include the following information for each monitor: **(2/05)**
- A. The date and duration of time from the commencement to the completion of an event which resulted in excess emissions of any pollutant.
 - B. The date and time of the commencement and completion of each specific time period of excess emissions within that event.
 - C. The total time duration of excess emissions.
 - D. The magnitude of the emissions, including the highest emission rate, and the average emission rate. All excess emissions shall be converted into the units of the permit. All conversion factors and equations shall be included.
 - E. The nature and cause of any malfunction resulting in excess emissions and the corrective action taken and/or preventative measures adopted.

SPECIAL CONDITIONS

Flexible Permit Number 8996 and PSD-TX-454M3

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- F. The date and time identifying each period during which a CEMS or COMS (or emissions measuring device acceptable by the EPA) was inoperative, except for zero and span checks, and the nature of the system repairs and/or adjustments which occurred during the downtime. **(2/05)**
 - G. When no excess emissions have occurred or the CEMS or COMS (or emissions measuring device acceptable by the EPA) have not been inoperative, repaired, or adjusted, such information shall be stated in the report. **(2/05)**
 - H. The total tons of SO₂, NO_x, and CO emitted during the quarter; the total hours of kiln operation; and the total hours of raw mill operation during the quarter shall be reported. **(2/98)**
 - I. In addition to the other information required in this special condition, a summary of the excess emissions shall be reported using the form identified as Figure 1 in 40 CFR § 60.7.
 - J. The reporting of excess emissions required by this condition does not relieve the holder of this permit from notification requirements of emission events as required by 30 TAC § 101.201 or notification of scheduled maintenance, start-up, and shutdown activities as required by 30 TAC § 101.211.
20. For the purposes of reporting pursuant to Special Condition Nos. 2 and 19, excess emissions from combined Kiln/Scrubber stacks are defined as follows:
- A. Excess emissions of SO₂ are each rolling average period of operation specified in the MAERT during which the hourly average emissions of SO₂, as measured and recorded by the CERMS, exceed the emission limitations of Special Condition No. 2.
 - B. Excess emissions of NO_x are each daily period of operation during which the 30-day rolling average emissions of NO_x, as measured and recorded by the CERMS, exceed the emission limitations of Special Condition No. 2. The 30-day rolling average is to be computed on a daily basis as the average of the hourly emissions on the 30th day and the preceding 29 daily average emissions. **(2/05)**
 - C. Excess emissions of CO are each one-hour average period of operation during which the hourly average emissions of CO, as measured and recorded by the CERMS, exceed the combined kilns emission limitations of Special Condition No. 2. **(2/05)**

SPECIAL CONDITIONS

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- D. Excess periods of opacity are each six-minute period of operation during which the average opacity, as measured and recorded by the COMS (or emissions measuring device acceptable by the EPA), exceed the emission limitations of Special Condition No. 7 or 8. **(2/05)**
- 21. The holder of this permit shall physically identify and mark in a conspicuous location all equipment that has the potential of emitting air contaminants as follows:
 - A. The facility identification numbers as submitted to the Emissions Inventory Section of the TCEQ.
 - B. The EPNs as listed on the MAERT.
- 22. For purposes of demonstrating compliance with the General Condition No. 9, the holder of this permit shall monitor both kiln scrubbers as follows: **(2/98)**
 - A. Uptime (in hours) as a percentage of kiln operating hours;
 - B. Scrubbing liquid pH and flow rate recorded at least once per hour; and
 - C. Downtime (in hours) of the raw mill when the scrubber is down.

RECORDKEEPING REQUIREMENTS

- 23. The holder of this permit shall maintain records of all alternative fuels handled as follows:
 - A. The source and date received;
 - B. Amount received in pounds (or gallons for liquids);
 - C. A description of the material;
 - D. Estimated high heating value of the fuel in Btu per pound (or Btu/gallon for liquids);
 - E. Number of pounds fired (or gallons fired for liquids) and date/time fired;

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- F. Percentage of TDF fed into the kiln system (kiln and precalciner) on an hourly, high heating value basis; and
- G. percentage of total alternative fuel fed into the kiln system (kiln and precalciner) on an hourly, high heating value basis. **(2/05)**

SNCR

24. A. The holder of this permit shall:

- (1) Within 45 days of issuance of this flexible permit, submit for approval a written test plan to pilot selective non-catalytic reduction (SNCR) technology to the TCEQ Air Permits Division and TCEQ Dallas/Fort Worth Regional Office. The written test plan shall not contain confidential information.
- (2) Within 90 days after the issuance of this permit, or May 1, 2005, whichever is later, initiate SNCR pilot testing on Kiln Line 1, followed by pilot testing on Kiln Line 2, in compliance with the approved test plan (or amended test plan, if agreed by Holcim and TCEQ). The SNCR pilot test will end on September 30, 2005 ("SNCR test period"). This requirement does not prohibit the permit holder from conducting other SNCR testing.
- (3) No later than December 1, 2005, submit a report, detailing the results of the SNCR testing described in 24.A.(2) and containing at least the most recent 12 months of daily NO_x CEMS and clinker production data. The report will be used to evaluate if SNCR is applicable technology for the cement manufacturing facilities and to ensure that the SNCR operation required in 24.C.(2) is optimized based on the approved test plan. SNCR is applicable technology if NO_x emission reductions, if any, are demonstrated to be achievable and sustainable over at least the equivalent of seven days during the SNCR test period, considering the environmental impacts, including detached and/or secondary plumes and any increase in CO and/or ammonia emissions, and impacts to product quality and cement manufacturing operations.

B. Maximum NO_x emission limit

At all times after issuance of this flexible permit, total annual emissions shall not exceed 3,738 tons of NO_x per year, based on a 12-month rolling average. Any 30-day rolling average of NO_x emissions established pursuant to 24.C or 24.D, shall not exceed 1,300 pounds per hour.

SPECIAL CONDITIONS

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C. After the SNCR test period, the NO_x emission limit from May 1 to September 30 of each year shall be limited as follows:

- (1) Total NO_x emissions shall not exceed 1,564 tons. This emission limit may be adjusted pursuant to 24.C.(3).
- (2) If the results of the SNCR test period demonstrate that SNCR is applicable technology, as defined by 24.A.(3), by May 1, 2006, the permit holder will install a permanent SNCR system and operate the SNCR system in a manner demonstrated by the pilot testing or as otherwise agreed between the permit holder and TCEQ to achieve the NO_x emission levels that were demonstrated during the SNCR test period to be achievable and sustainable over at least the equivalent of seven days, considering the environmental impacts, including detached and/or secondary plumes and any increase in CO and/or ammonia emissions, and impacts to product quality and cement manufacturing operations, from May 1, 2006 through September 30, 2006 ("five month operational period"). The holder of this permit shall collect operational data for each kiln, including daily clinker production (short tons per day) and NO_x emissions (pounds per day) from the five month operational period. No later than August 15, 2006, Holcim shall provide the interim emissions and operational data for the May 1, 2006 through July 15, 2006 period to the TCEQ.
- (3) No later than November 30, 2006, the holder of this permit shall submit a request for permit alteration to establish a 30-day rolling average NO_x emission limit in the maximum allowable emission rate table (MAERT), applicable between May 1 and September 30 of each year. This short-term limit will be established using the five month operational period data collected during normal operation of the SNCR system.

The alteration request shall include the daily clinker production and NO_x emissions data for the five month operational period, and other operational data relevant to (including data identified in the approved test plan) establishing the 30-day rolling average NO_x emission limit applicable between May 1 through September 30 of each year. The long-term emission limit in 24.C.(1) shall be adjusted, if necessary, to not exceed the short-term limit established in this subparagraph 24.C.(3), as determined by multiplying such short-term limit by 24 hours per day and 153 days per five month period, and dividing by 2,000 pounds per ton.

D. The NO_x short-term limit from October 1 through April 30 of each year shall be set in accordance with the requirements of this paragraph. Beginning October 1, 2005, NO_x emissions data shall be collected through April 30, 2006, and again from October 1, 2006

SPECIAL CONDITIONS

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through April 30, 2007, to establish a 30-day rolling average NO_x emission limit applicable between October 1 and April 30 of each year, as set forth below ("14-month operational period"). At no time during this period shall the kilns be operated to circumvent the intent of this paragraph by operating the kilns in a manner which increases NO_x when it is not necessary to achieve good quality clinker or full production. No later than June 30, 2007, the holder of this permit shall submit a permit alteration request to establish a 30-day rolling average NO_x emission limit in the MAERT, applicable between October 1 through April 30 of each year, based on data collected during the 14-month operational period. The request shall include the daily clinker production and NO_x emissions data collected during the 14-month operational period, and other operational data relevant to establishing a 30-day rolling average NO_x emission limit applicable between October 1 and April 30 of each year. This short-term limit will be established using the 14-month operational period data collected during normal cement manufacturing facility operations.

- E. If the SNCR test period demonstrates that SNCR is applicable technology for the cement manufacturing facilities, as defined in 24.A.(3), then following the completion of the SNCR test period, the permit holder will operate SNCR at all kiln operating times from May 1 through September 30 of each year and during October, except as provided below, or during periods in which the operation of SNCR is infeasible because of start-up, shutdown, or maintenance activities; malfunction events; or SNCR optimization activities. Notwithstanding the previous sentence, the operation of SNCR is not required at any time during or after the SNCR test period when a detached or secondary plume is observed by using EPA Method 22 observation. The permit holder will notify the TCEQ Regional Office within 24 hours of a positive EPA Method 22 observation of a detached or secondary plume.
- F. For the purpose of determining compliance with the short-term and long-term NO_x limits set forth in this permit, emissions that result from a start-up, shutdown, or maintenance activity, or a malfunction event, will not be applicable to such limits. These emissions shall be reported as required by 30 TAC Chapter 101, Subchapter F, and shall be included the annual Emissions Inventory reporting. (2/05)

Dated _____

ATTACHMENT I

Flexible Permit Number 8996 and PSD-TX-454M3

Permit Emission Points under Emission Cap

SITE-WIDE SOURCES UNDER THE MAERT CAP:

<u>EPN</u>	<u>SOURCE NAME</u>
1A*	Primary (Upper Bench) Limestone Crusher
2*	Secondary Crusher Baghouse Stack
3*	Raw Material Transfer Point Baghouse Stack
4*	Conveyor Belt Transfer Baghouse Stack
5*	Line No. 1 Raw Mill Feed Bins Baghouse Stack No. 1
6*	Line No. 1 Raw Mill Feed Bins Baghouse Stack No. 2
7*	Kiln No. 1 Main Baghouse, Bypass Baghouse, and Scrubber Stack
8*	Rotary Kiln Feed Silo Upper Baghouse Stack
9*	Rotary Kiln Feed Silo Lower Baghouse Stack
11*	Waste Bypass Dust Baghouse Stack
12*	Coal Handling Baghouse Stack
13*	Coal Storage Bin Baghouse Stack
14*	Clinker Conveyor Transfer Point Baghouse Stack
15*	Clinker Conveyor Baghouse Stack
16*	Gypsum Silo Baghouse Stack
17*	Upper Clinker Silos Baghouse Stack
18*	Gypsum Weigh Feeder Baghouse Stack
19*	Clinker Feeder No. 7 Baghouse Stack
20*	Clinker Feeder No. 1 Baghouse Stack
21*	Clinker Feeder No. 6 Baghouse Stack
22*	Clinker Feeder No. 4 Baghouse Stack
23*	Finish Mill System No. 1 Baghouse Stack
24*	Gypsum Weigh Feeder Baghouse Stack
25*	Clinker Weigh Feeder No. 2 Baghouse Stack
26*	Clinker Weigh Feeder No. 5 Baghouse Stack
27*	Clinker Weigh Feeder No. 3 Baghouse Stack
28*	Clinker Weigh Feeder No. 8 Baghouse Stack
29*	Finish Mill System No. 2 Baghouse Stack
30*	Cement Silo No. 1 Discharge Baghouse Stack
31*	Cement Silo No. 2 Discharge Baghouse Stack
32*	Cement Silo No. 4 Discharge Baghouse Stack
33*	Cement Silo No. 5 Discharge Baghouse Stack
34*	Cement Silo No. 7 Discharge Baghouse Stack
35*	Cement Silo No. 8 Discharge Baghouse Stack
36*	Cement Silo No. 1 Filling Baghouse Stack

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<u>EPN</u>	<u>SOURCE NAME</u>
37*	Cement Silo No. 7 Filling Baghouse Stack
38A*	Coal Storage Pile
38B*	Gypsum Storage Pile
38C*	Clinker Storage Pile
38D*	Alternate Fuels Storage Pile
38E*	Dust - Alkali Bypass to Truck
38F*	Coal/Gypsum - Rail Dump to Reclaim Conveyor
38G*	Coal - Reclaim Conveyor to Stacker
38H*	Coal - Loader to Coal Hopper
38I*	Gypsum - Reclaim Conveyor to Gypsum Pile
38J*	Gypsum - Loader to Gypsum Hopper
38K*	Clinker - Loader to Clinker Hopper
38 L*	Alumina Source - Rail Unloading to Truck
38 M*	Variable Import/Export Storage Pile
38N*	Reserve Limestone Storage Pile
39*	Quarry
40A*	Shale Storage Pile No. 1
40B*	Shale Storage Pile No. 2 and Shale- Reclaimer (West)
40C*	Shale Storage Pile No. 2 and Shale- Reclaimer (East)
40D*	Raw Material Storage Pile/Raw and Materials- Reclaimer (East)
40E*	Raw Material Storage Pile/Raw and Materials- Reclaimer (West)
40F*	Shale - Loader to Hopper
41*	Cement - Cement Silos to Rail/Truck
42*	Shale Crusher Discharge Baghouse Stack
43*	Line No. 2 Raw Mill Feed Bins Baghouse Stack No. 1
44*	Raw Mill Discharge Airslide Baghouse Stack
45*	Kiln Feed System No. 1 Baghouse Stack
46*	Blending Silo Upper Baghouse Stack
47*	Blending Silo Lower Baghouse Stack
48*	Kiln Feed System No. 2 Baghouse Stack
49*	Pan Conveyor Under Clinker Cooler Baghouse Stack
50*	Dust Bin Baghouse Stack
51*	Clinker Silo No. 1 Discharge Baghouse Stack (North)
52*	Clinker Silo No. 1 Discharge Baghouse Stack (South)
53*	Slag/Gypsum Bins and Belt Discharge Baghouse Stack
54*	Clinker Silo No. 2 Discharge Baghouse Stack (North)
55*	Clinker Silo No. 2 Discharge Baghouse Stack (South)
56*	Clinker Silo Feeder Baghouse Stack
57*	Clinker Conveyor Transfer Point Baghouse Stack

ATTACHMENT I**Flexible Permit Number 8996 and PSD-TX-454M3**

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<u>EPN</u>	<u>SOURCE NAME</u>
58*	Belt-Air-Slide Transfer Point 1 Baghouse Stack
59*	Belt-Air-Slide Transfer Point 2 Baghouse Stack
60*	Bulk Loading 1 Baghouse Stack
61*	Truck Loadout - 1 Baghouse Stack
62*	Kiln No. 2 Main Baghouse, Bypass Baghouse, Coal Mill Baghouse, and Scrubber Stack
63*	Rail Loadout - 1 Baghouse Stack
64*	Coal Mill Conveyor Baghouse Stack
65*	Truck Loadout- 2 Baghouse Stack
66*	SKS & Cement Mill Baghouse Stack
67*	Cement Silo Filling Baghouse Stack (North)
68*	Cement Silo Filling Baghouse Stack (South)
69*	Truck/Rail Loadout Baghouse Stack (North)
70*	Truck/Rail Loadout Baghouse Stack (South)
71*	Air-Slide Conveyor Baghouse Stack
72*	Pulverized Coal Bin Baghouse Stack
73*	Pulverized Coal Bin CO Analyzer Baghouse Stack
74*	Scrubber (Reagent -Feed) System 1 - Line 1
75A*	Primary (Lower Bench)Limestone Crusher
76*	Cooling Tower
77*	Line 1 Kiln Dust Bin Baghouse Stack
78*	Line 2 Kiln Dust Bin Baghouse Stack
79*	Line No. 2 Raw Mill Feed Bins Baghouse Stack No. 2
80*	Line No. 1 Raw Mill Feed Bins Baghouse Stack No. 3
81*	Clinker Silo De-Dusting Baghouse Stack No. 1
82*	Clinker Silo De-Dusting Baghouse Stack No. 2
83*	Clinker Silo De-Dusting Baghouse Stack No. 3
84*	Raw Material Handling Baghouse Stack No. 1
85*	Raw Material Handling Baghouse Stack No. 2
RMR*	Raw Material Road
GPR*	Gypsum Road
AFR*	Alternate Fuels Road
PRR*	Product Road
BDR*	Bypass Dust Road

ATTACHMENT I

Flexible Permit Number 8996 and PSD-TX-454M3

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SOURCES UNDER PERMIT-BY-RULE AUTHORIZATION:

1B*	Primary (Upper Bench) Limestone Crusher Engine
75B*	Primary (Lower Bench) Limestone Crusher Engine

Dated_____

ATTACHMENT II

Flexible Permit Number 8996 and PSD-TX-454M3

Combined Kiln Speciated Compounds Emissions Limit Summary

<u>EPN</u>	<u>Emission Point Description</u>	<u>Speciated Compound</u>	<u>lb/hr</u>	<u>tpy</u>
7* & 62*	Kiln No. 1 Main Baghouse, Bypass Baghouse, and Scrubber Stack & Kiln No. 2 Main Baghouse, Bypass Baghouse, Coal Mill Baghouse, and Scrubber Stack	Aluminum	0.24	0.92
		Ammonia	4.02	15.38
		Ammonium Chloride	7.72	29.56
		Arsenic	0.01	0.02
		Barium	0.18	0.68
		Benzaldehyde	0.90	3.44
		Benzene	12.60	48.24
		Benzo(a)pyrene	5.22E-05	2.00E-04
		Beryllium	2.64E-04	1.01E-03
		Boron	0.02	0.08
		Cadmium	8.82E-04	3.38E-03
		Chromium	0.06	0.22
		Copper (fume)	2.12	8.12
		Ethyl Toluene	3.38	12.94
		Ethylbenzene	2.08	7.96
		Fluorene	0.01	0.02
		Fluoride (as HF)	0.36	1.38
		Hydrogen Chloride	3.88	14.86
		Iron	0.34	1.30
		Lead	0.04	0.16
		Manganese (fumes)	0.02	0.08
		Mercury	0.02	0.08
		Methyl Indene	4.04	15.46
		Methyl Mercaptan	0.92	3.52
		Methyl Styrene	0.02	0.08
		Methylene Chloride	0.20	0.76
		Naphthalene	0.68	2.60
		Nickel	0.02	0.08
		OCDD	8.02E-07	3.08E-06
		OCDF	1.67E-07	6.40E-07
		Pentadiene (all isomers)	2.46	9.42
		Phenathrene	0.16	0.62
		Selenium	0.08	0.30
		Silver	1.00E-03	3.82E-03
		Styrene	2.76	10.56
		Thallium	3.30E-03	0.02
		Toluene	19.66	75.26
		Total HpCDD	3.38E-07	1.30E-06
		Total HpCDF	1.09E-07	4.20E-07

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<u>EPN</u>	<u>Emission Point Description</u>	<u>Speciated Compound</u>	<u>lb/hr</u>	<u>tpy</u>
		Total HxCDD	1.45E-07	5.60E-07
		Total HxCDF	1.47E-07	5.60E-07
		Total PeCDD	1.08E-06	4.14E-06
		Total PeCDF	1.16E-07	4.40E-07
		Total TCDD	1.85E-08	8.00E-08
		Total TCDF	4.54E-07	1.74E-06
		Xylenes	9.70	37.14
		Zinc	0.14	0.54
Total speciated compounds emissions from combined kilns			79 lb/hr	302 tpy

Dated_____

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Number 8996 and PSD-TX-454M3

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
7*, 62*	Kiln Lines 1 and 2 Combined	CO	3,878	7,113
		NO _x (30-day)	1,300	--
		NO _x (annual)	--	3,738
		PM/PM ₁₀ (filterable)	55	243
		PM/PM ₁₀ (condensable)	706	205
		PM/PM ₁₀ (total)	761	448
		SO ₂ (1-hour)	5,200	--
		SO ₂ (3-hour)	4,600	--
		SO ₂ (24-hour)	3,800	--
		SO ₂ (annual)	--	3,538
		TRS	30	36.6
		H ₂ SO ₄	360	41
		VOC	584	875
		Speciated Compounds	79	302
Attachment I List	Plantwide Annual Emission Limits	PM (filterable)	--	517
		PM ₁₀ (filterable)	--	476
		PM (total)	--	723
		PM ₁₀ (total)	--	682
	Other PM/PM ₁₀ Sources (4) Short-Term Emission Limits	PM (total)	77	--
		PM ₁₀ (total)	66	--

(1) Emission point identification - either specific equipment designation or emission point number from a plot plan.

(2) Specific point source names. For fugitive sources, use an area name or fugitive source name.

(3) CO - carbon monoxide

NO_x - total oxides of nitrogen, collectively expressed (calculated) as nitrogen dioxide

PM - particulate matter, suspended in the atmosphere, including PM₁₀

PM₁₀ - particulate matter equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no particulate matter greater than 10 microns is emitted.

SO₂ - sulfur dioxide

TRS - total reduced sulfur

H₂SO₄ - sulfuric acid

VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1

Speciated Compounds - see Attachment II

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

(4) Other PM/PM₁₀ Sources - except kiln stacks, includes all dust collectors and fugitive sources.

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

24 Hrs/day 7 Days/week 52 Weeks/year or 8,760 Hrs/year

** Compliance with annual emission and production limits is based on a rolling 12-month period.

Maximum Allowable Production Rate: 2.67 million short tpy of clinker

Dated_____

ESCROW AGREEMENT

This Escrow Agreement is entered into by and between (1) Holcim (as defined herein), (2) the Environmental Groups (as defined herein), and (3) U.S. Bank National Association (the “Escrow Agent”).

WHEREAS, Holcim and the Environmental Groups have entered into a Settlement Agreement, dated the same date (the “Settlement Agreement”), pursuant to which the Environmental Groups have agreed to withdraw their hearing requests regarding Texas Commission on Environmental Quality (“TCEQ”) Docket No. 2004-1086-AIR concerning Holcim’s application under the Prevention of Significant Deterioration (PSD) program to amend existing Air Permit No. 8996/PDS-TX-454M2, in exchange for certain actions to be taken by Holcim, as defined therein; and

WHEREAS, the Settlement Agreement requires Holcim and the Environmental Groups to contemporaneously execute this Escrow Agreement, which shall be attached to the Settlement Agreement as Exhibit B;

NOW, THEREFORE, in consideration of the premises and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Holcim, the Environmental Groups, and the Escrow Agent agree as follows:

1. Definitions:

- a. “Environmental Groups” shall mean Blue Skies Alliance (“BSA”) and Downwinders at Risk (“DAR”) and any successors, assigns, and persons acting on behalf of either or both organizations. This definition does not include volunteers or members acting in their individual capacity and not as a member of either of the Environmental Groups.
- b. “Holcim” shall mean Holcim (Texas) Limited Partnership, Holcim (US) Inc., and any successors, assigns, and persons acting on behalf of Holcim.

- 2. Escrow.** Within 15 days after the execution of the Settlement Agreement and this Escrow Agreement, Holcim will deposit with the Escrow Agent the sum of \$2,250,000.00 (two million two hundred fifty thousand dollars and no cents) (the “Escrowed Fund”). The Escrow Agent agrees to hold, disburse from, and distribute the Escrowed Fund, and any dividends, distributions, interest and all other income accumulation or capital appreciation received therefrom (hereinafter, together with the Escrowed Fund, referred to as the “Escrow Amount”), in accordance with the terms and conditions of this Escrow Agreement.

- 3. Disbursements From the Escrowed Fund.** The Escrow Agent will make payments from the Escrowed Fund as follows. Holcim and the Environmental Groups shall provide

joint notice to the Escrow Agent of the identity of the party(ies) that will receive the payment(s) under this subparagraph, the amount of the payment(s) that each party will receive, when to make the payment(s), and the method of payment (check or wire transfer). Upon receipt of such joint notice, the Escrow Agent will make the payment(s) as directed. The total amount paid from the Escrowed Fund under this subparagraph will not exceed \$2,250,000.00 (two million two hundred fifty thousand dollars and no cents).

4. **Return of All or Part of Escrow Amount.** The Escrow Agent shall return all or part of the Escrow Amount as provided below.

- a. Upon the completion of all payments from the Escrowed Fund that are required by the Settlement Agreement, Holcim and the Environmental Groups will provide joint notice regarding disbursement of any remaining funds including accrued interest.
- b. The Settlement Agreement also provides that if Holcim elects in its sole discretion not to obtain the Permit Amendment or not to appeal a denial of the Permit Amendment, then there shall be no Release Date and all of the remaining escrowed funds shall be returned to Holcim with interest accrued. Accordingly, upon the occurrence of either of the events specified in the preceding sentence, Holcim and the Environmental Groups will provide joint notice to the Escrow Agent to return all escrowed funds to Holcim, together with all accrued interest.
- c. The Settlement Agreement further provides that if the Permit Amendment issued by TCEQ and accepted by Holcim contains material changes that are not in accordance with the Settlement Agreement, are not otherwise acceptable to either of the Parties, and place an additional financial burden on Holcim within the first three years after the Permit Amendment is issued, for additional emission control(s), monitoring requirements, operating costs, or other related costs, either in the aggregate or otherwise, in excess of the amount stated in paragraph 2.b of the Settlement Agreement, then there shall be no Release Date and all of the remaining escrowed funds shall be returned to Holcim with interest accrued. Accordingly, upon the occurrence of the events specified in the preceding sentence, Holcim and the Environmental Groups will provide joint notice to the Escrow Agent to return all escrowed funds to Holcim, together with all accrued interest.

5. **Investment of Escrowed Fund.** The Escrow Agent will at the written direction of Holcim invest and reinvest the Escrowed Fund in such Permitted Investments (as defined below) as are reasonable and prudent. The Escrow Agent shall maintain records setting forth (i) the amount of the Escrow Amount attributable to the Escrowed Fund and (ii) the amount of the Escrowed Fund attributable to dividends, distributions, interest and all other income accumulation or capital appreciation in respect of the Escrow Amount. As used herein "Permitted Investment" shall mean (a) interest-bearing bank or money market deposits, (b) direct obligations of the United States, or of any agency thereof, or

obligations guaranteed as to principal and interest by the United States or any agency thereof, and (c) certificates of deposit issued by any commercial bank organized under the laws of the United States, or any state thereof having capital and surplus in excess of \$500,000,000, in each case of this definition maturing within 90 days after the date of acquisition thereof. The Escrow Agent may make investments through or from its own bond department or trust investments department, or its parent's or affiliates' bond department or trust investments department. Except as otherwise provided hereunder or agreed in writing, Holcim shall retain the authority to institute, participate and join in any plan of reorganization, readjustment, merger or consolidation with respect to the issuer of any securities held hereunder, and, in general, to exercise each and every other power or right with respect to each such asset or investment as individuals generally have and enjoy with respect to their own assets and investments, including power to vote upon any securities. Holcim acknowledges that regulations of the Comptroller of the Currency grant Holcim the right to receive brokerage confirmations of the security transactions as they occur. Holcim specifically waives such notification to the extent permitted by law and will receive periodic cash transaction statements which will detail all investment transactions.

6. **Escrow Fee.** Holcim will be responsible for payment of the Escrow Agent's fee.
7. **Termination of the Escrow Agreement.** This Escrow Agreement, except for Paragraphs 8.d and 8.e which shall continue in effect, shall terminate upon the distribution of all of the Escrowed Fund in accordance with Paragraphs 2 and 3.
8. **Concerning Escrow Agent.** Holcim and the Environmental Groups hereby covenant and agree with the Escrow Agent as follows:
 - a. The Escrow Agent is not a party to, or bound by, any other agreement between Holcim and the Environmental Groups, including the Settlement Agreement, which may relate to this Escrow Agreement ("Other Agreement"). The Escrow Agent is, however, bound by the directives of the Settlement Agreement as reflected in this Escrow Agreement.
 - b. The Escrow Agent acts hereunder as a depository only and is not responsible or liable in any manner whatever for the sufficiency, correctness, genuineness or validity of any Other Agreement or with respect to the form or execution of same; or the identity, authority, or rights of any person executing the same.
 - c. In case of any suit or proceeding regarding this Escrow Agreement to which the Escrow Agent is or may be at any time a party, Holcim and the Environmental Groups agree to indemnify and hold harmless the Escrow Agent from all losses, costs, fees and expenses or damages incurred, including but not limited to attorney fees, by reason of this Escrow Agreement or the subject matter hereof or any cause of action which may be filed in connection therewith (other than with respect to any acts found to constitute gross negligence or willful misconduct on the part of the Escrow Agent) and to pay the Escrow Agent upon demand, all such costs, fees and expenses so incurred. Holcim and the Environmental Groups'

obligation to indemnify the Escrow Agent pursuant to the terms of this paragraph shall not otherwise limit any rights or causes of action it may have.

- d. The Escrow Agent shall not be liable for any error of judgment or for any act done or step taken or omitted by it in good faith, or for any mistake of fact or law, or for anything which it may do or refrain from doing in connection herewith, except its own gross negligence or willful misconduct and the Escrow Agent shall have no duties to anyone except those signing this Escrow Agreement.
 - e. The Escrow Agent may consult with legal counsel, independent of counsel for Holcim and the Environmental Groups, in the event of any dispute or questions as to the construction of the foregoing instruments, or the Escrow Agent's duties hereunder, and the Escrow Agent shall incur no liability and shall be protected in acting in accordance with the opinion and instructions of such counsel.
9. **Further Assurances.** Holcim and the Environmental Groups shall cooperate with each other in connection with the subject matter hereof, and execute such other documents, affidavits and other items as may be reasonably necessary to effectuate the terms of this Escrow Agreement.
10. **Notices.** Any notice or other communication required or permitted to be given hereunder will be in writing and shall be delivered via an overnight courier such as Federal Express or delivered by confirmed facsimile transmission, as follows:

To Holcim:

Holcim (Texas) Limited Partnership .
Attn: Plant Manager
1800 Dove Lane
Midlothian, TX 76065
Fax: 972-923-5923

With copy to: Holcim (US) Inc.
Attn: Legal Dept.
6211 Ann Arbor Rd.
Dundee, MI 48131
Fax: 734-529-2800

To Environmental Groups:

Blue Skies Alliance
Attn: Executive Director
P.O. Box 763844
Dallas, TX 75736
Fax: 496-241-0430

Downwinders at Risk
Attn: Chair
P.O. Box 763844
Dallas, TX 75736
Fax: 469-241-0430

To Escrow Agent:

U.S. Bank National Association
Attn: James Kowalski
535 Griswold Street, Suite 550

Detroit, MI 48226
Fax: 313-963-9428

or to such other address as the party may have furnished in writing in accordance with the provisions of this Paragraph. Any notice or other communication shall be deemed to have been given, made and received upon receipt. Any party may change the address to which notices are to be addressed by giving the other parties notice in the manner herein set forth.

11. Miscellaneous.

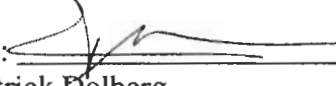
- a. Entire Agreement. This Escrow Agreement constitutes the entire agreement between Holcim, the Environmental Groups, and the Escrow Agent, and supersedes any prior understandings or agreements by or between these parties, written or oral, that may have related in any way to the subject matter of this Escrow Agreement.
- b. Binding Agreement; Assignment. This Escrow Agreement will be binding upon, and will inure to the benefit of, the parties and their respective successors and permitted assigns. Except as otherwise provided in this Escrow Agreement, the parties may not assign either this Escrow Agreement or any of their rights, interests, or obligations under this Escrow Agreement without the prior written approval of the other parties.
- c. Amendments and Waivers. No amendment of any provision of this Escrow Agreement will be valid unless it is in writing and signed by all parties. No waiver by a party of any default, or breach of covenant, or breach of representation or warranty under this Escrow Agreement, whether intentional or not, will be deemed to extend to any prior or subsequent default, or breach of covenant, or breach of representation or warranty under this Escrow Agreement, or affect in any way any rights arising by virtue of any prior or subsequent such occurrence.
- d. Expenses. Except as otherwise provided, each of the parties will bear its own expenses incurred, including attorney fees, in connection with the negotiation of this Escrow Agreement and the transactions contemplated by this Escrow Agreement.
- e. Construction. The parties have participated jointly in the negotiation and drafting of this Escrow Agreement. In the event an ambiguity or question of intent or interpretation arises, this Escrow Agreement will be construed as if drafted jointly by the parties and no presumption or burden of proof will arise favoring or disfavoring any party by virtue of the authorship of any of the provisions of this Escrow Agreement.

- f. Enforcement of This Escrow Agreement. This Escrow Agreement will be interpreted and enforced under the laws of the State of Texas, in a state court of competent jurisdiction in Texas.
- g. Execution. This Escrow Agreement may be executed in one or more facsimile counterparts, each of which shall be as effective as the original, and together shall constitute the final executed version of the Escrow Agreement.
- h. Third Parties. Nothing in this Escrow Agreement shall be construed to give any person or entity other than the parties hereto any legal or equitable claim, right, or remedy; rather this Escrow Agreement is intended to be for the sole and exclusive benefit of the parties hereto.
- i. Severability. If any provision or clause in this Escrow Agreement or application thereof to any person or circumstances is held invalid or unenforceable, such invalidity or unenforceability shall not affect other provisions or applications of this Escrow Agreement which can be given effect without the invalid or unenforceable provision or application and to this end the provisions of this Escrow Agreement are declared to be severable.
- j. Resignation or Removal of Escrow Agent. The Escrow Agent may resign as such following the giving of thirty (30) days' prior written notice to the Holcim and Environmental Groups. Similarly, the Escrow Agent may be removed and replaced following the giving of thirty (30) days' prior written notice to the Escrow Agent by the Holcim and Environmental Groups. In either event, the duties of the Escrow Agent shall terminate thirty (30) days after the date of such notice (or as of such earlier date as may be mutually agreeable); the Escrow Agent shall then deliver the balance of the Escrow Funds then in its possession to a successor escrow agent as shall be appointed by Holcim and Environmental Groups as evidenced by a written notice filed with the Escrow Agent.
- k. Authority. The signatories to this Escrow Agreement represent that they are authorized and have the power to execute and legally bind the parties that they represent to this Escrow Agreement. Each of the signatories will provide evidence of their authority to the other parties prior to execution of this Escrow Agreement.

IN WITNESS WHEREOF, the Parties have executed this Escrow Agreement in three originals to be effective as of the date last signed by any of the Parties:

Dated: 7-29-05

Holcim (Texas) Limited Partnership

By: 
Patrick Dolberg
President and CEO, Holcim (US) Inc.

Dated: 7-26-05

By: Keith J. Klein
Keith J. Klein
Attorney for Holcim
Blue Skies Alliance

Dated: 7-20-05

By: Wendi Hammond
Wendi Hammond, Executive Director

Downwinders at Risk

Dated: 7-20-05

By: Rebecca Bornhorst
Rebecca Bornhorst, Chair
By Perussia

U.S. Bank National Association, as Escrow Agent

Dated: July 29, 2005

By: James Kowalski
James Kowalski, Escrow Agent

Emissions Testing and Monitoring Protocol for Alternative Fuels

**Holcim (Texas) Limited Partnership
Midlothian, Texas**

July 20, 2005

Prepared by:

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Emission Monitoring Inc.
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Raleigh, NC 27617
919.781.3824

1. Background

Holcim (Texas) Limited Partnership (Midlothian Plant) uses two contemporary pre-heater pre-calciner pyroprocessing kiln systems for producing Portland cement. Each kiln system is currently equipped with fabric filters to control particulate emissions and a wet scrubber for controlling SO₂.

Fuel is fired in the rotary kiln and pre-calciner to provide the necessary energy for calcining feed and producing clinker. Coal is the primary fuel used to fire the kilns. Currently, coal is fired in the rotary kiln and various combination of coal and alternative fuels are used in the precalciner. In the future, non-hazardous petroleum containing liquids may be fired in the rotary kiln or in the precalciner.

Alternative fuels used include, but are not limited to:

1. Tires (chipped tires) and other rubber derived fuel
2. Recycled oil fluff/wood chips
3. Shredded asphalt shingles
4. Non-hazardous petroleum containing liquids (future planned use)
5. Oily rags
6. Activated carbon

The use of alternative fuels in the production of clinker has the following advantages:

- Reducing the amount of fossil fuel required to produce clinker,
- Producing a product from waste, and
- Disposing materials that may be otherwise land filled

In addition, the use of certain alternative fuels has been demonstrated to provide other environmental benefits. For example, staged combustion of tire derived fuel has been shown to reduce NO_x emissions from the process while providing a proper disposal method for used tires which otherwise may create significant environmental hazards if improperly disposed.

This emission testing and monitoring protocol was developed to address concerns that have been raised regarding the effects of using alternative fuels on emissions of BTX compounds: (benzene, toluene, o, m, and p-xylenes) and styrene from the Midlothian Plant kiln systems.

A January 23, 2005 draft of this protocol was developed and submitted to representatives of "Blue Skies Alliance" and "Downwinders at Risk." Comments and extensive discussion of the issues occurred during subsequent meetings and calls. Based on these discussions, the protocol has been substantially revised to reflect points where agreement has been reached and to add additional technical details and procedures.

2. Purpose

Holcim asserts that the use of alternative fuels in conjunction with coal firing does not increase the mass emission rates of BTX and styrene from the kiln systems relative to the emissions from coal only firing. The purpose of this test protocol is to test this hypothesis.

The application of this emission testing and monitoring protocol may be thought of as a two step process. First, the protocol provides for short term measurements of kiln system mass emission rates (i.e., lb/hour emission rates) of the BTX and styrene compounds for coal only firing and coal plus alternative fuels firing. Second, the protocol includes the development of a surrogate monitoring technique and operational limits to provide continuing assurance that emissions of these compounds do not significantly increase with coal plus alternative fuels firing versus coal only firing.

The goals of the test program are to:

1. Acquire concentration measurements for BTX and styrene of known accuracy and precision while firing coal only and coal plus alternative fuels,
2. Calculate the mass emission rates of BTX and styrene compounds for firing coal only and coal plus alternative fuels using concentration measurement results combined with concurrent effluent volumetric flow rate data from the permanently installed continuous flow rate monitoring system (validated by comparison with production rate parameters),
3. Apply statistical analysis procedures to determine if the mass emission rates of BTX and styrene in the kiln effluent are significantly greater while firing coal plus alternative fuels as compared to firing coal only,
4. Acquire "total hydrocarbon" (i.e., THC) measurements concurrent with measurements of BTX and styrene emissions while firing coal only and coal plus alternative fuels to evaluate the surrogate monitoring approach,
5. Acquire additional long term THC emission rate data to fully characterize the variability of emissions over time to account for long term variations in raw materials, and
6. Determine statistically appropriate THC surrogate levels relative to baseline levels for continuing operation that can be used to determine the acceptability of new alternative fuels and provide a trigger for further investigation or corrective action.

3. Data Quality Objectives

Measuring BTX compounds in cement kiln effluent presents many technical challenges and requires using appropriate test methods. Factors such as calibration materials, sampling approach, analytical method, tester experience and proficiency affect the uncertainty of the results that are obtained. Attachment A of this document presents an estimate of the uncertainty in BTX and styrene measurements using two conventional test methods.

BTX concentrations in cement kiln emissions are expected to range from high ppb concentration levels up to a few ppm. BTX emissions are generated by the cracking of hydrocarbons present in the raw materials and are a naturally occurring phenomenon of the thermal processing of the raw materials in the cyclone preheater.

In designing the data quality objectives for the test program, the following issues must be considered:

1. The concentration measurement results of BTX and styrene will have an inherent variability due to the natural variability of the process, raw feed materials and the test method.
2. The accuracy of the concentration measurement results is affected by the calibration materials, the sampling approach, the analytical method and the tester.
3. The mass emission rates of BTX and styrene will be determined using the concentration results provided by the test method and the effluent volumetric flowrate provided by the flow rate monitor. The accuracy and precision of the flow rate monitor affect the uncertainty of the mass emission rate measurements.

After careful consideration of the above issues and the ability of the test methods to produce precise and accurate results, the test program data quality objectives for short term measurements are defined to be:

BTX and Styrene Concentration Measurements

Precision $\pm 20\%$ of the mean of the samples, or ± 1 ppm whichever is least restrictive

Accuracy $\pm 20\%$ of the mean of the results, or ± 1 ppm whichever is least restrictive

Effluent Flow Rate Measurements

Precision $\pm 6\%$ of the measurement range as demonstrated by daily calibration drift checks using internal devices as per 40 CFR Part 75 Appendix B

Accuracy $\pm 10\%$ of the mean of the results relative to manual test results performed annually during accuracy audits as per 40 CFR Part 75 Appendix A

Because a direct continuous monitoring technique has not been established for the BTX and styrene compounds, selecting an appropriate surrogate monitoring method will be necessary to provide reasonable assurance that emissions remain within acceptable ranges over time. Holcim proposes to use the THC values as provided by the installed flame ionization detector analyzer in the CEM system. These THC measurements will be compared to the BTX and styrene test results to determine if these data provide an acceptable surrogate indicator.

The data quality objectives for the THC concentration measurements are:

Precision $\pm 6\%$ of the measurement range or ± 6 ppm, whichever is least restrictive as demonstrated by daily calibration drift checks in accordance with requirements at 63.8(c)(7)(i) and 40 CFR Part 60, Appendix A, Performance Specification 8A

Accuracy $\pm 5.4\%$ of the measurement range or ± 5.4 ppm, whichever is least restrictive (based on Performance Specification 8A calibration error specifications and EPA Protocol 1 calibration gases)

4. Selecting Alternative Fuels for Emission Testing

The Midlothian kiln systems currently fire a number of different alternative fuels as they become available through their various suppliers. Additional fuels are expected to be used in the future as recycling efforts increase. Because of the variability and number of possible alternative fuel/fossil fuel combinations, it is impossible to test the emissions under all permutations. Instead, representative alternative fuels and/or fuel combinations must be selected for this test program.

Initially it was proposed that a ranking system based on combustion characteristics of the fuel, expected ability to produce BTX emissions, mechanical ability to continuously feed the fuels, and other factors be used as the basis for selection of the alternative fuels that would be tested. Subsequent discussions among the interested parties produced agreement and eliminated need for use of a ranking system.

The following fuel firing conditions represent the majority of the alternative fuels fired and will be tested initially:

1. Coal only firing as the "baseline condition"
2. Coal plus chipped tires
3. Coal plus recycled oil fluff/wood chips

Hence, emissions would be tested under three fuel firing conditions. The tests would be performed with the kiln operating at $100\% \pm 10\%$ of the normal maximum production rate.

5. Selecting an Emission Test Method

Two potential test methods for reliably measuring BTX and styrene concentrations include (a) 40CFR60, Appendix A, Method 18 "Measurement of Gaseous Organic Compound Emissions by Gas Chromatography" and, (b) ASTM D 6420-04, "Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry." The ASTM D 6420 method is substantially the same as and replaces EPA Conditional Test Method 028 and Alternative Method (ALT-017) as noted on the EPA, Emission Measurement Center website. Note also ASTM D 6240-98 was republished during 2004 as ASTM D 6420-04 and the previous version is no longer available from ASTM. ASTM methods are available to be downloaded from the website at www.astm.org.

Use of direct interface Fourier Transform Infrared (FTIR) spectroscopy was ruled out because of detection limit issues for BTX and styrene. An FTIR measurement system is

limited to about 5-20 ppm for BTX and styrene compounds as a minimum practical detection limit in calciner effluent matrix.

Similarly, Method 25 is entirely unsuitable for effluent measurements at a Portland cement plant and also will not provide the necessary speciation. See Attachment B which explains Method 25 problems and limitations.

Method 18 can be used in several modes;

1. Use of adsorbent tube sampling and subsequent laboratory recovery and analysis with GC-MS or other analytic technique. Requires spike recovery study to validate results
2. Collection of gas samples in tedlar bags and subsequent laboratory recovery and analysis (Not recommended due to condensation that will occur in bags.)
3. Direct interface systems where samples are extracted from the stack and conveyed directly to the analyzer (Typically done with GC-FID and calibration standards developed in the field by analyst using pure liquids. Similar costs to direct interface GC-MS but (a) lacks absolute speciation, (b) provides higher detection and quantification limits, and (c) lacks commercially prepared calibration standards.)

The ASTM D 6420-04 is only used in the direct interface mode for this type of application. Thus, effluent samples are continuously extracted and conveyed to a gas conditioning system through heated sample lines. Periodically, gas samples are acquired from the conditioning system outlet and are co-injected along with independent internal standards into the GC-MS analyzer. Analysis cycle times typically range from 8 to 12 minutes depending upon effluent matrix conditions. BTX and styrene calibrations are developed at three concentration levels relative to a commercially prepared calibration gas standards diluted with calibrated mass flow meters. An independent calibration gas is used to audit the calibration curve and conduct continuing calibration checks. Calibration standards are purchased from Spectra Gases Inc. and are certified to within 5% of the tag value. Numerous additional details are specified by the ASTM method.

Based on discussions among the interested parties, it was agreed that ASTM D 6420-04 would be used to acquire the BTX and styrene concentration measurements at the Midlothian Plant. If for reasons beyond Holcim's control ASTM D 6420-04 cannot be used, EPA Method 18 with adsorbent tubes will be used.

6.0 Short-Term BTX and Styrene Emission Tests

The MCS 100 hot/wet extractive CEM systems for Kiln 1 and Kiln 2 acquire effluent samples through heated sample probes, heated sample lines, and heated head sample pumps. The gas sample then passes through the heated infrared gas cell where measurements are made of SO₂, NO, CO, and H₂O concentrations. The gases exiting the sample cell are split; one portion is exhausted to the atmosphere and another portion is conveyed to the inlets of a zirconium oxide O₂ analyzer and a flame ionization analyzer

that provides total hydrocarbon (THC) measurements. The O₂ and FID analyzers are process monitors and are not subject to regulatory or permit requirements.

For the short-term BTX and styrene tests, the gas samples for GC-MS analysis will be acquired from the exit of the MCS 100 hot/wet extractive analyzer from a "T" configuration. This will enable the exact comparison of the ASTM D 6420-04 test method and concurrent THC measurement data. It will allow the GC-MS analyzer and associated equipment to be set-up and operated in the controlled environment of the CEMS shelters for Kiln 1 and Kiln 2. This is important to assure data quality.

The mass emission rates in units of lb/hr will be determined using the concentration data provided by the GC-MS analysis in combination with the effluent flow rate monitor installed on each of the kiln stacks. The in-situ effluent flow rate monitors are across stack, FLOWSIC ultrasonic "time-of-flight" monitors manufactured by Sick Maihak. The effluent flow rate monitor provides measurements on a wet basis. The MCS 100 H₂O concentration measurements will be used to convert the dry basis GC-MS concentration measurements to a wet basis, consistent with the wet basis effluent flow rate and THC concentration measurements. The effluent flow rate will also be calculated based on clinker production/feed rate and specific heat consumption to validate the effluent flow rate measurements.

Special attention must be paid in designing the test to ensure that the influence of the natural variability of raw materials on emissions is accounted for. To minimize the likelihood of confusing a short-term change in emissions that is actually due to variation in raw materials with an apparent change due to alternative fuels, baseline testing will be performed before and after each test condition with alternative fuels. As a practical matter, a particular baseline test (coal only firing) may serve as the post test baseline for one alternative fuel and the pretest baseline for another alternative fuel. In the event that a shift in THC emission rates or BTX or styrene emission rates occur during a particular test, Holcim may elect to repeat sampling and analysis for specific test conditions, or conduct additional test runs in order to acquire representative measurement results.

A period of at least one hour will be allowed between consecutive test conditions to ensure that stable representative operating conditions are achieved and residual effects, if any, related to firing alternative fuels have passed.

A minimum of three sample runs will be conducted for each test condition. Each sample run will include collection of a minimum of four samples over a period of approximately 1 hour. Hence, at least 12 GC-MS samples will be collected under each test condition representing a three-hour period of emissions.

The BTX compound and styrene concentrations together with the concurrent effluent flow rate and moisture measurements will be tabulated for each 15-minute period corresponding to an individual GC-MS sample. The mass emission rate for each compound and the aggregate BTX plus styrene mass emission rate will be calculated using these data. In addition, the THC concentration and mass emission rate (expressed

as propane) will be determined for each 15-minute period for use in evaluating the surrogate monitoring approach.

7.0 Process Operating Conditions

During the BTX and styrene emission tests, the process will be operated under normal operating conditions and within 10% of the normal maximum production rate. For tests with alternative fuels, the alternative fuel firing rates will depend upon availability of fuels and other factors and will be conducted at a level expected to represent normal firing of the particular fuel. Sufficient alternative fuel must be on-hand to maintain a stable alternative fuel firing rate during the entire test.

The following data will be collected to document operating conditions during the tests:

1. Production rate and raw materials feed rate
2. Coal and alternative fuel firing rates
3. Effluent flow rate, oxygen concentration, moisture content, and temperature
4. Effluent THC concentration (reported as propane)

Holcim will collect raw feed samples during each test. Samples will be analyzed for total organic content by an outside laboratory selected by Holcim.

Other operational parameters routinely monitored and recorded by Holcim will be available as necessary for additional analysis.

Holcim will obtain raw materials in accordance with its normal quarry operations. No special or unique mining or quarry activities will be used for the test.

8.0 Data Analysis and Alternative Fuel Acceptance Criteria

Appropriate statistical analysis procedures must be applied to the BTX and styrene mass emission rate measurements to determine if there is a statistically significant increase when firing alternative fuels. The statistical test will be applied for emission rate measurements of each compound and for the aggregate BTX plus styrene mass emission rate. The acceptability criterion for an alternate fuel will be based on the aggregate BTX plus styrene mass emission rate comparison.

An alternative fuel is acceptable provided that the aggregate BTX plus styrene emissions when firing the alternative fuel and coal are not significantly greater than the emissions for coal only firing, taking into account the uncertainty of the measurements and inherent variability of the process over the short term.

To accomplish the above, the experimental design has been configured to minimize the affects of inherent process variability over the short term. Also, the specific statistical calculations are included as Appendix I that will be used to determine if significantly greater emissions occur when firing alternative fuels. The statistical calculations include (a) direct comparison of the mean emission rate values for baseline and alternative fuel

firing, and (b) a "t-test" to determine if an observed difference is statistically significant. The procedures will be applied to each alternative fuel test.

To reiterate the specific acceptance criteria, a particular alternative fuel is acceptable if:

1. the aggregate BTX plus styrene mean value for baseline (coal only firing) is greater than the corresponding mean value for alternative fuel firing, or
2. the "t-test" demonstrates that there is no significant increase in aggregate BTX plus styrene mass emissions for the alternative fuel.

9. Establishing a Surrogate Monitoring Approach

In accordance with permit requirements, the Midlothian Plant operates continuous emission monitoring systems (CEMS) for Kiln 1 and for Kiln 2 in order to monitor compliance with SO₂, NO_x, and CO emission limitations. The CEMS equipment installed on each kiln includes an in-situ FLOWSIC effluent flow rate monitor and a MCS 100 extractive sampling system with a hot/wet multi-component infrared analyzer. Integral to the MCS 100 system is an oxygen analyzer and a total hydrocarbon (THC) analyzer that uses flame ionization detection. The O₂ and THC analyzers are process monitors and are not subject to regulatory or permit requirements. The THC analyzer is calibrated using propane calibration gases. For the purposes of emission rate determinations, the THC measurements are interpreted "as propane" (i.e., having a molecular weight of 44).

Holcim proposes to use the THC analyzer measurements as a surrogate monitoring technique for the emissions of BTX and styrene. The approach of using a THC analyzer for an organic hazardous air pollutant surrogate is sanctioned by the US EPA and was established under the Portland cement NESHAP (40 CFR subpart 63 LLL) as a means to control HAP emissions from new Portland cement kiln systems. Additionally, Subpart EEE requires hazardous waste burning Portland cement kilns to use FID-based analyzers to demonstrate that good combustion conditions are maintained.

The surrogate approach would allow any possible combination of alternative fuel/fossil fuel to be combusted as long as the pre-established range for the surrogate THC measurements is not exceeded. Exceeding the range would trigger an investigative action for the cause so that an appropriate remedy could be determined. (See section 11.0 below.)

To evaluate the efficacy of the proposed surrogate monitoring approach, the THC data would be obtained concurrent with the BTX and styrene measurements. The THC mass emission rate would be calculated using the concurrent effluent flow rate measurements for each fifteen minute period. The same statistical approach would be applied to the THC data as are applied to the aggregate BTX and styrene mass emission test results to determine if there is an increase in THC emission rates when firing an alternative fuel.

Monitoring of THC as a surrogate indicator is determined to be acceptable if (a) the BTX plus styrene mass emission rate measurements, and (b) the THC mass emission rates,

demonstrate the same finding (i.e., consistent “acceptable” or “not acceptable” conclusion) regarding whether the firing of a particular alternative fuel results in a significant increase in BTX plus styrene emissions or THC emissions. If the BTX plus styrene mass emission rate measurements and the THC mass emission rates do not demonstrate the same finding, then the tests will be conducted again.

10.0 Establishing Surrogate THC Operational Trigger Levels

Assuming that the THC monitoring is demonstrated to be an adequate surrogate based on the short term measurements (Section 9 above), it will then be necessary to determine an appropriate trigger levels to initiate further investigation and corrective action for ongoing operation. This process must take into account the inherent long term variability of the process and raw materials and the long term variability of the measurement methods.

The long term variability of the raw materials, process and measurement method can best be characterized by analyzing historical data. Holcim will analyze a minimum of 90 days of THC concentration and effluent flow rate data preceding the short term emission tests to characterize the long term variability. The data will be screened to eliminate any periods of monitor calibration, maintenance, quality assurance activities and any other non-representative conditions such as process upsets, start-ups, or shutdowns. Data acquired while burning any alternative fuel that is not shown to meet the short term acceptability criterion will also be eliminated. The standard deviation will be calculated for three-hour rolling averages of THC mass emission rates remaining in the screened data set.

The surrogate THC trigger level for corrective action will be established as the mean value observed during all baseline and acceptable alternative fuels short term tests plus twice the standard deviation resulting from the 90-day, or longer, historical data analysis.

11.0 Continued Use of Alternative Fuels and Corrective Actions

Holcim can fire those alternative fuels demonstrated to meet the acceptance criteria for the short term tests in any combination with each other and coal. Firing of the alternative fuels can continue provided that the surrogate THC trigger level is not exceeded.

Holcim can fire new alternative fuels provided that it is demonstrated that the surrogate THC trigger level is not exceeded for a minimum three hour test period where the new fuel is fired with coal and no other alternative fuels. Following such a demonstration, the new alternative fuel may be fired with any other acceptable alternative fuel.

While firing alternative fuels, Holcim shall track the three-hour rolling average of THC mass emission rates. (The average is updated at the completion of each new hour of monitoring data.) If the three-hour rolling average exceeds the surrogate THC trigger level, Holcim shall temporarily discontinue firing of alternative fuels for that kiln and initiate an investigation into the cause of the elevated THC mass emission rates. The

investigation will include a review of operating conditions and a comparison of the THC emission rates for coal only firing (after stable conditions are established following cessation of alternative fuel firing) with the three-hour average that exceeded the trigger threshold. Appropriate corrective action will be taken if the investigation and review of operating conditions reveals that there was an identifiable problem with the operation of the kiln system, the manner of firing alternate fuels, or the particular characteristics of an alternate fuel. If the investigation reveals that there was a sudden problem with the monitoring equipment, corrective action will be taken to return the monitoring system to proper operation. If the cause of the elevated THC mass emission rates is not determined and resolved through the investigation and review of operational conditions, the following steps will apply:

1. If halting the firing of alternative fuels results in a reduction in THC mass emission rates, the cause may be attributed to firing of one or more of the alternative fuels. Resumption of firing of the alternative fuels is allowed only if emissions can be maintained below the surrogate THC trigger level.
2. If halting the firing of alternative fuels does not result in a reduction in THC mass emission rates, the increased level will be attributed to a shift due to raw material feed changes. A new surrogate THC trigger level will be established at the three-hour level existing for coal only firing following the cessation of firing alternative fuels. A timely notification to the interested parties will be provided stating that the surrogate THC level for corrective action has been increased. Records of the THC mass emission rates before and after the increase, and any relevant records or information from the investigation and operational review will be made available for on-site inspection.
3. The new surrogate THC trigger level will remain in effect until the three-hour rolling average emission rate drops to a level one standard deviation, or further, below the most recent previous surrogate THC trigger level for a three-hour average. After any such a drop, the THC trigger level will revert to the most recent previous value.

Periods that exceed the three-hour surrogate THC trigger level for corrective action due to variations in the raw material feed are expected to occur infrequently. Provisions are included above to reduce the trigger level to the most recent previous level promptly if the trigger level has increased due to a short-term variation in feed materials.

12.0 Operation and Maintenance of THC Monitor

Holcim will properly operate and maintain the Midlothian THC monitors and effluent flow rate monitors in order to provide reliable THC emission rate measurement results both during the short-term emission tests and for subsequent on-going surrogate monitoring of emissions. Specific data quality objectives for the accuracy and precision of the THC and flow rate monitors are included in Section 3 of this Protocol. Holcim will develop and implement a quality control program to ensure that reliable data is obtained. The quality control program will include:

- Procedures for calibration of the monitoring equipment
- Procedures for daily calibration checks

- Procedures for adjustments when monitor drift exceeds specified limits
- Procedures for periodic accuracy audits
- Preventative maintenance procedures
- Corrective action procedures for malfunctioning monitors
- Spare parts inventory for preventive maintenance and corrective action

When the monitoring equipment becomes inoperative or exceeds QA limits, Holcim will initiate corrective action within 24 hours, except for week ends and holidays.

13.0 Miscellaneous

Holcim agrees to take one lead (Pb) sample when at least one kiln is burning coal only. In addition, Holcim agrees to take one lead (Pb) sample while burning roofing materials at a time to be determined by the Parties.

ATTACHMENT A

METHOD 18 AND ASTM D 6420-04 UNCERTAINTY

INTRODUCTION

In evaluating the effect of alternative fuels on BTX (benzene, toluene, m,n and o-xylene) and styrene emissions, two of the proposed methods are Method 18 (*Measurement of Gaseous Organic Compound Emissions by Gas Chromatography*, 40 CFR 60, Appendix A) and ASTM 6420-04 (*Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry*). The purpose of this attachment is to estimate the uncertainty of the concentration derived by these methods.

Both Method 18 and ASTM D 6420 are performance-based methods. The methods are validated each time they are applied.

METHOD-18 DESCRIPTION AND DISCUSSION

Method 18 has several procedures for the collection of the sample, e.g., bag samples, direct interface, and adsorbent tubes. The latter, adsorbent tubes, is the proposed method for this study.

The “Adsorption Tube Procedure” is described in Section 8.2.4 of Method 18. The sampling train consists of the following:

- Heated Teflon or glass probe
- One midjet impinger (containing 10 mL of DI water) in an ice bath
- Two adsorbent tubes with precleaned adsorbent in series
- Flexible tubing to for connections of components
- Leakless sample pump, with limiting orifice for flow control
- Rotameter, to detect flow rate changes during sampling.

Volume-Measurement Uncertainty

A bubble tube flow meter with an accuracy of $\pm 1.0\%$ and stopwatch are used to calibrate the sample flow rate before and after sampling. The rotameter is used to verify that the pump and orifice sampling rate remains constant throughout the run. The flow-rate change is subject to the following specifications:

- $\leq 5.0\%$ change (no directions are given on how to treat this category, but it is best to use the average)
- $> 5.0\%$, but $\leq 20\%$, use average of initial and final runs.
- $> 20.0\%$, invalidate results

Method 18 is not specific in the frequency of readings of the rotameter to demonstrate constant rate sampling. The accuracy of the volume measurement would be a function of “when” the change occurs. For example, if the flow rate changed just 15 seconds before the end of the sampling run by 5.0% , using the average would introduce an inaccuracy of about 2.5% .

Thus, the best approach is to take frequent flow rate readings and to use the summation of the product of flow rate and time to obtain an integrated average. However, this would rely upon the accuracy and sensitivity of the rotameter and would require approval by EPA as this is not part of the method.

For the application in question, the specification of flow rate change of Method 18 will be limited 5.0%. The allowed specification of >5.0% and ≤20.0% will not be used. Using the average of the initial and final pump-orifice calibration, the uncertainty that is due to flow rate change will be limited to ±2.5%. The actual change can be determined for each sample run and the actual uncertainty can be determined.

The estimated uncertainty of volume measurement is as follows:

- ±1.0% uncertainty for the calibration. Since the calibration occurs twice, the overall uncertainty would be $[1.0^2 + 1.0^2]^{1/2} = \pm 1.4\%$. The inaccuracy of time measurement is assumed to be zero.
- ±1.0% for time change. Although the maximum uncertainty might be ±2.5%, a more likely scenario is that the flow rate change would occur gradually over the time period. This is because particulate matter tends to collect on the filter evenly throughout the run – the flow rate decreases as resistance through the filter increases. Thus, a ±1.0% uncertainty is selected as an engineering judgment.
- The overall uncertainty for volume measurement is then: $[1.4^2 + 1.0^2]^{1/2} = \pm 1.7\%$.

Recovery and Analytical Uncertainty

When adsorption tubes are used, a recovery study must be conducted. This study consists of running duplicate trains. One is spiked with known quantities of the compounds of interest; the other is left unspiked. The difference between the spiked and unspiked trains is divided by the known amount of spiked material; this ratio is termed “R.” This study is conducted in triplicate. The average R of the three runs must be within R = 0.70 to 1.30.

Other performance specifications are:

- Triplicate analyses of calibration standard must fall within ±5.0% of their mean value.
- Analysis of prepared audit samples must be within ±10.0% of the preparation values.
- Calibration standards must be accurate to within ±2.0% of the certified value; ±1.0% is preferred, but not required.
- Duplicate analyses of samples must be ±5.0% of their mean (this is not in the latest version, but should be a necessary part of the procedure)

The above performance specifications are boundaries that limit excessive inaccuracies. The measurements that affect the overall uncertainty of the method are:

- Calibration standards
- Measurement of sample volumes, for both the spiked and unspiked trains
- Measurement of the mass of pollutant in sample, spiked and unspiked
- Measurement of spiked sample

In calculating the concentration to be reported, Equations 18-8, 18-9, and 18-7 are used:

$$m_v = \frac{m_s}{V_s} - \frac{m_u}{V_u}$$

$$R = \frac{m_v V_s}{S}$$

$$C_r = \frac{C_m}{R}$$

where:

- m_s = mass in spiked sample
- m_u = mass in unspiked sample
- V_s = sample volume of spiked train
- V_u = sample volume of unspiked train
- S = mass of spike
- C_m = measured concentration
- C_r = reported concentration

The uncertainty equations can be greatly simplified by making certain assumptions as follows:

- V_s and V_u are about the same, i.e., $V_s = V_u$
- $m_s = 1.5 m_u$. The required amount is a range of 1.4 m_u to 1.6 m_u .

With the above assumptions, the uncertainty equations become:

$$U_{mv} = [(3 U_{ms})^2 + (3 U_{vs})^2 + (2 U_{vu})^2 + (2 U_{vu})^2]^{1/2}$$

$$U_R = [U_{mv}^2 + U_S^2 + U_{vs}]^{1/2}$$

$$U_r = [U_{cm} U_R^2]^{1/2}$$

The uncertainties for each of the above terms are estimated as follows:

- U_{ms} and $U_{mu} = 10\%$ at the 2 RSD level. Method 18, Section 13.1 suggests an RSD = 5%.
- U_{vs} and $U_{vm} = 1.7\%$, as previously calculated (see above).
- U_S is estimated as $[2^2 + 1^2]^{1/2} = \pm 2.2\%$, using calibration standard accuracy of 2% and spiking accuracy of 1%.
- $U_{cm} = [U_{mu} + U_{vu}]^{1/2} = [10^2 + 1.7^2]^{1/2} = \pm 10.1\%$

Using the above estimates, the worst case overall uncertainty

- $U_{mv} = \pm 36.6\%$
- $U_R = \pm 36.7\%$
- $U_r = 38.1\%$

ASTM D 6420-04 DESCRIPTION AND DISCUSSION

This method uses a direct interface gas chromatograph/mass spectrometer (GCMS) to identify and quantity 36 volatile organic compounds, which includes the BTEX compounds. It is also performance-based in that it validates each GCMS analysis by placing boundaries on the instrument response to gaseous internal standards and their specific mass spectral relative abundance. Because it uses a direct interface, volume measurement is incorporated into the analysis.

The performance specifications that affect uncertainty are as follows:

- Calibration standards – at least within $\pm 5.0\%$.
- Calibration curves – analyses of audit gases must be within $\pm 20.0\%$.
- System continuing calibration check of six surrogate compounds (includes toluene, o-xylene, and chlorbenzene) must agree within 20%. This specification includes the precision of measurement of an estimated $\pm 10\%$.

Estimate of Overall Uncertainty

The two specifications that affect overall uncertainty are:

- Calibration standards – $\pm 5.0\%$.
- Calibration check – $\pm 20.0\%$.

The overall uncertainty is then:

$$U_m = [U_{cal}^2 + U_{cc}^2]^{1/2} = [5.0^2 + 20.0^2]^{1/2} = \pm 20.6\%$$

ATTACHMENT B

METHOD 25

INTRODUCTION

One of the methods suggested for the evaluation of the effect of alternative fuels on BTX (benzene, toluene, m,n and o-xylene) and styrene emissions is Method 25. This attachment explains why Method 25 is unsuitable.

METHOD DESCRIPTION

Method 25 applies to the measurement of volatile organic compounds (VOC) as total gaseous nonmethane organics (TGNMO) as carbon.

Method 25 collects a sample in a chilled condensate trap and in an evacuated sample tank. The contents of the trap and tank are analyzed separately. The organic content of the trap fraction is oxidized to CO₂ and the combusted gases are quantitatively collected in an evacuated vessel. Then a portion of the CO₂ is reduced to CH₄ and measured by an FID.

The organic content of the sample tank fraction is measured by injecting a portion of the sample into a gas chromatographic column to separate the organics from CO, CO₂, and CH₄, and the non-methane organics are oxidized to CO₂, reduced to CH₄, and measured by an FID.

DISCUSSION OF LIMITATIONS

When stack CO₂ concentrations are high, it is critical to pay close attention to the condensate trap analysis. The method states, *"After sampling is completed, the condensate trap will contain condensed water and organics and a small volume of sampled gas. This gas from the stack may contain a significant amount of CO₂ which must be removed from the condensate trap before the sample is recovered. This is accomplished by purging the condensate trap with zero air and collecting the purged gas in the original sample tank."*

The purge gases are monitored until the CO₂ level of the purge gas is less than 5 ppm CO₂. The obvious limit of Method 25 is the amount of residual CO₂ that remains in the condensate trap, which would cause a positive bias. Because of this possible bias, Method 25 applies to relatively high concentration levels. According to Method 25, the bias becomes significant if the product of the % moisture and %CO₂ exceeds 100. In the case being studied, % moisture = 17.8 and %CO₂ = 12.0. The product is 214, which is more than twice the "insignificant" bias level.

Method 25 specifically states, *"The minimum detectable for the method is 50 ppm as carbon."* Thus, the limit of detection is approximately 150 ppm with an uncertainty of ±30%.

Method 25 has not been evaluated in collaborative tests. However, EPA provides audit samples (two per compliance test) in compressed cylinders. Each audit sample contains three organic compounds (in N₂) at the ppm level and 5 percent CO₂. Two concentration levels are available (50 to 300 ppm C and 700-2000 ppm C). The auditee attaches his/her own regulator and transfer line to the cylinder and collects and analyzes a sample using the Method 25 sampling train. Thus, this procedure evaluates the entire test method under laboratory conditions.

Mitchell, et al.¹, evaluated the results of these audit sample analyses. Their evaluation showed that *"less than 75% of the % biases for the high concentration samples and less than 50% of the % biases for the low concentration samples will meet the Method 25 limits of $\pm 20\%$. It also shows that the mean % bias for the low concentration audit samples will be +16% and that for the high concentration samples will be -6%."*

Thus, for low levels of hydrocarbons, Method 25 can be expected to provide a positive bias.

CONCLUSION

Method 25 is not suitable for measuring total hydrocarbons for two reasons:

- The levels of moisture and CO₂ are such that positive bias is very likely.
- The levels non-methane hydrocarbons encountered from the source in question are close to the minimum detection limit of the method.

For low levels of hydrocarbons, Method 25 suggests the use of an FID.

REFERENCES

1. Mitchell, W.J., J.C. Suggs, and E.W. Streib, "A Statistical Analysis of Stationary Source Compliance Test Audit Data," U.S. Environmental Protection Agency, Atmospheric Research and Exposure Assessment Laboratory, RTP, NC 27711, December 2, 1993.

APPENDIX I
STATISTICAL CALCULATIONS FOR DETERMINING SIGNIFICANT
DIFFERENCES BETWEEN COAL AND COAL PLUS ALTERNATIVE FUEL FIRING

DESCRIPTION OF TEST PROTOCOL

The purpose of the test program is to determine whether there is any difference in BTX plus styrene emissions under the two firing conditions – with and without alternative fuels. Similarly, short term tests will be conducted to determine if there is any difference in THC emissions with and without alternative fuels to evaluate a potential surrogate technique for on-going monitoring. The short term test protocol is as follows:

- Baseline conditions – coal only
- Alternative fuel conditions – coal plus alternative fuel
- Baseline conditions – coal only

The evaluation protocol that is recommended by EPA is the t-test, either two samples assuming equal variances or two samples assuming unequal variances. The software for these calculations are found in the Microsoft Excel spreadsheet under “Tools – Data Analysis.” The two samples will be taken under two conditions: “coal only” and “coal plus alternative fuel”. The proposed experiment could be performed as follows:

- First baseline – 6 samples
- Alternative fuel – 12 samples
- Second baseline – 6 samples

In a sequential type of test, time variation can be a major factor. Because BTX plus styrene and THC emission rates do vary while one type of fuel is being burned, the THC monitor will be used to determine the stability of the operation during the two conditions, as well as differences between the first and second baselines. If an appreciable difference occurs, it may be necessary to repeat the test or to take additional samples to obtain the necessary number of samples while the THC conditions are about the same.

Alternative experimental designs may be as follows:

- Baseline – 12 samples
- Alternative fuel – 12 samples

or

- First baseline – 12 samples
- Alternative fuel – 12 samples
- Second baseline – 12 samples

The measurement methods and procedures that will be used are detailed in the “Emission Testing and Monitoring Protocol for Alternative Fuels.”

Statistical Evaluation

The difference between two conditions (coal and coal plus alternative fuel) will be calculated as follows:

$$D = C_{AVG} - A_{AVG}$$

where:

- D = difference
- C_{AVG} = average BTX plus styrene emission rate during coal test
- A_{AVG} = average BTX plus styrene emission rate during alternative fuel test

To determine whether "D" is statistically significant, the t-statistic and the critical value at the 95% confidence level will be used. The statistics are calculated as follows:

- **Standard Deviations**

$$SD_C = \sqrt{\frac{\sum_{i=1}^n (C_i - C_{AVG})^2}{n - 1}}$$

$$SD_A = \sqrt{\frac{\sum_{i=1}^n (A_i - A_{AVG})^2}{n - 1}}$$

where:

- SD_C, SD_A = standard deviations for coal and alternative fuels, respectively
- n = total number of samples
- C_i, A_i = sample concentrations, coal only and coal plus alternate fuel conditions
- C_{AVG}, A_{AVG} = average of coal only and coal plus alternate fuel conditions

- **t-Test**

The t-test is used to determine if the difference between the average values for the baseline and the alternative fuel conditions are statistically different.

$$t = \frac{|D|}{\sqrt{\frac{SD_C^2 + SD_A^2}{12}}}$$

If the calculated t-value is less than the critical value, the difference (D) is not statistically significant. The critical value for n = 12 for each of two sets of samples is 2.074 (22 degrees of freedom).

Settlement Agreement – Exhibit D

Text of Proposed Bill

For each industry in Texas that is defined as a major source for air emissions which has a facility located in a nonattainment or near-nonattainment area, the state shall reimburse companies for pollution control equipment capital expenditures and operating costs under the following formula.

First Company

For the first company in an industry to install an emission control technology in Texas on a facility located in a nonattainment area, the company shall be eligible for a tax credit for the capital and installation cost of the equipment as well as the operating costs of that equipment for the first five years of operation under the following formula:

First Year: (capital and installation cost X percentage of emission reduction of nonattainment pollutant achieved) + (operating costs X percentage of reduction achieved). For example, a technology is installed on a facility located in an area classified as nonattainment for ozone and results in a 30% reduction in NO_x and/or VOC emissions for that facility. Also, capital and installation costs totaled \$1 million and operating costs were \$30,000 for the first year. Under this bill, the company would receive a tax credit of \$309,000 for the first year.

Years 2 – 5: (operating costs X percentage of emission reduction of nonattainment pollutant achieved). For example, take the same company above, but operating costs for each year thereafter totaled \$50,000. The company would receive a tax credit of \$15,000 for each year.

Additional Incentive for First Company:

If the company installs an emission control technology and provides that the emission control technology will be an enforceable provision of its permit and not a “pilot program” such that the technology will become a new standard for BACT and/or LAER for Texas, then the company will receive 100% of its operating costs for the first five years of operation. The company must operate the control technology for at least 10 years such that maximum emission reductions are achieved, or the company will have to pay back the additional tax credit plus interest.

Special Incentive for First Company

If the company installs an emission control technology and is willing to retire all of the emission credits resulting from the reduction, then the company will receive 100% of the capital and installation costs and 100% of the operating costs for 10 years. The emission control technology must be an enforceable provision of its permit and not a “pilot program” such that the technology will become a new standard for BACT and/or LAER

for Texas. The company must operate the control technology for 10 years such that maximum emission reductions are achieved, or the company will have to pay back the additional tax credit plus interest.

Second Company

For the second company in an industry to install an emission control technology in Texas on a facility located in a nonattainment or near-nonattainment area, the company shall be eligible for a tax credit for the capital and installation cost of the equipment as well as the operating costs of that equipment for the first two years of operation under the following formula:

First Year: $\{(\text{capital and installation cost} \times \text{percentage of emission reduction of nonattainment pollutant achieved}) + (\text{operating costs} \times \text{percentage of reduction achieved})\} - 50\%$. For example, a technology is installed on a facility located in an area classified as nonattainment for ozone and results in a 30% reduction in NO_x and/or VOC emissions for that facility. Also, capital and installation costs totaled \$1 million and operating costs were \$30,000 for the first year. Under this bill, the second company would receive a tax credit of \$154,500 for the first year.

Second Year: $(\text{operating costs} \times \text{percentage of emission reduction of nonattainment pollutant achieved}) - 50\%$. For example, take the same company above, but operating costs for each year thereafter totaled \$50,000. The company would receive a tax credit of \$7,500 for each year.

Settlement Agreement – Exhibit E

Withdrawal of Hearing Request

DATE

Ms. LaDonna Castanuela
Chief Clerk (MC-105)
Texas Natural Resources Conservation Commission
P.O. Box 13087
Austin, TX 78711-3087

Re: Holcim Texas Limited Partnership; TCEQ Docket No. 2004-1086-AIR; Permit
No. 8996/PSD-TX-454M3; Withdrawal of Hearing Request

Dear Ms. Castanuela:

Previously, Blue Skies Alliance (BSA) and Downwinders At Risk (DAR) on behalf of their members requested a contested case hearing in the above named and numbered permit amendment application. Since that time, BSA and DAR have reached a settlement agreement with Holcim. Therefore, BSA and DAR do hereby withdraw their requests for a contested case hearing on this matter. BSA and DAR will not object further to the pending permit amendment, but BSA and/or DAR reserve the right to raise all issues on future amendments or renewal of the permit.

Sincerely,

Wendi Hammond
Executive Director
Blue Skies Alliance

Rebecca Bornhorst
Chair
Downwinders At Risk

CC: Mr. Keith Klein, Counsel for Holcim